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Work–family conflict and depressive symptoms among dual-earner couples in Germany: A dyadic and longitudinal analysis

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A B S T R A C T

This study contributes to the existing literature by testing the longitudinal effects of both types of work–family conflict (i.e., work-to-family conflict [WTFC] and family-to-work conflict [FTWC]) on depressive symptoms, using data from three waves of the German Family Panel (pairfam) survey collected over a four-year period. Using responses from 631 married or cohabiting heterosexual couples, the analyses are estimated using dyadic data analysis and auto-regressive and cross-lagged panel models. This analytical approach tests direct causation, reverse causation, and reciprocal relationships among WTFC, FTWC and depressive symptoms. The results suggest a reciprocal relationship with significant cross-lagged actor effects between WTFC (and FTWC) and depressive symptoms. However, there were no gender differences in the cross-lagged actor effects between men and women, and no significant partner effects. These results highlight the bidirectional nature of the relationship between work–family conflict and depressive symptoms, which has several implications for research and practice.

1. Introduction

A growing number of men and women in Europe are reconciling their work and family roles. In Germany, for example, women's labor market participation increased from 57% in 1991 to nearly 72% in 2018, among 15- to 64-year-olds (Statistisches Bundesamt, 2019a). As the majority of these women are still responsible for unpaid household labor and care for their children and other relatives, conflicts arise as the demands of both areas of life overlap. Such work–family conflicts (WFCs) are defined as interrole conflicts in which demands from both work and family roles are incompatible (Greenhaus and Beutell 1985). The resulting conflicts are conceptualized in two directions: 'Work-to-family' conflicts (WTFCs) are present when demands at work disrupt family life. 'Family-to-work' conflicts (FTWCs) occur when demands in one's family make fulfilling one's job role more challenging, whereby both WTFC and FTWC are reciprocally related (Greenhaus and Beutell 1985). However, it is assumed that the directionality of WFC is only set once the individual responds to the conflicting roles: if the work-related responsibility is prioritized, e.g., a person takes an unplanned work-related call at home that compromises their ability to do homework with their children, WTFC occurs; but if the person decides to attend to the family-related responsibility, e.g., leaving work early to pick up a sick child from an institutional childcare facility, family conflicts with work and FTWC is in place (Greenhaus and Beutell 1985). WTFC and FTWC are usually described as moderately correlated but distinct constructs that need to be examined separately (Voydanoff 2008; Byron 2005; Mesmer-Magnus and Viswesvaran 2005). In the present paper we use WFC when referring to the construct in general and WTFC and FTWC to refer to prior

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research that examines directional WFC, as suggested by Allen and Martin (2017).

Besides impairments of work and family lives, health-related consequences have been identified as major detrimental effects of WTFC and FTWC. Reviews and meta-analyses show that both directions of WFC are associated with mental and physical health, self-reported general health, health-related behavior, sleep, and healthcare utilization. However, WTFC and FTWC each exert a unique effect on health outcomes, and review articles show that the association between WTFC and health usually appears stronger than the association between FTWC and health outcomes (Amstad et al., 2011; Borgmann et al., 2019; Greenhaus et al. 2006). Currently, we see a fast-growing scientific concern regarding the association of WTFC, FTWC, and health in Europe, as Borgmann et al., 2019 reported in their review. For Germany, however, relatively few studies have examined the effects of WTFC and FTWC on mental health. Most of these studies rely on cross-sectional data (du Prel and Peter 2015; Höge 2009; Yucel and Latshaw 2020), which is a common issue in WFC research globally, as Allen et al. (2019), as well as Lapierre and McMullan (2016), discussed in their reviews.

In the present study, we contribute to filling this gap by using data from working men and women and their partners, taken from three waves of the German Family Panel (pairfam). This longitudinal data lets us investigate the effects of WTFC and FTWC on depressive symptoms in couples over time (Allen et al., 2019; Allen and Martin 2017). We furthermore aim to assess the effect of an individual's own WTFC and FTWC on depressive symptoms (i.e., actor effects) and the crossover effects on those individuals' partners (i.e., partner effects). The majority of prior studies on the consequences of WTFC and FTWC adopted a highly individualized approach while ignoring the couple context (Allen and Martin 2017), even though a great number of workers live in partnered relationships.

Additionally, to our knowledge, this is the first study to use three waves of data to understand the interdependence of individuals and how WTFC and FTWC in one partner affects their own health as well as their partner's health. To go one step further, using the analytical approach of autoregressive and cross-lagged panel models (ACLPM), we will examine the causal effects, reverse causal effects, and reciprocal effects between WTFC and mental health, and between FTWC and mental health, (Zapf et al. 1996). This analytical approach allows us to test whether adverse mental health conditions are not only outcomes of WTFC and FTWC but also antecedents of conflicts between the work and family spheres. We apply this approach not only for actor effects but also for partner effects within the couple, to produce unique results that may reveal important dynamics regarding the impact of mental health issues within a relationship. As prior research supports gender differences in both WFTC and FTWC (Hagqvist at al. 2017; Lunau et al., 2014) as well as mental health conditions (Van de Velde, Bracke, and Levecque 2010), we will test gender differences in actor and partner effects, in order to understand if different role characteristics between men and women shape the association between WTFC and mental health, as well as between FTWC and mental health.

1.1. Study context

Conflicts between the work and family spheres are prevalent in Germany, with 47% of employed women and more than 30% of employed men stating that they were often or very often too exhausted after work to be able to take care of private or family affairs (DGB 2017). The German government has tried to improve the reconciliation of work and family life: in 2007 major reforms were enacted, featuring a 14-month period of paid parental leave, increased tax subsidies for childcare, and extensive funding for institutional childcare for all children over the age of one (Mätzke and Ostner 2010). This governmental support, however, is limited and used to different extents by men and women, which manifests in rather traditional gender roles (Aisenbrey and Fasang 2017). To date, the male breadwinner model is still the dominant way of organizing work and family life for couples in the former West Germany, while women and mothers are more likely to work full-time in the eastern provinces (Statistisches Bundesamt, 2019b). Also, nearly 9% of women spend at least 1 h per week caring for elderly relatives, while only 5% of men do (Wetzstein et al. 2015).

1.2. Background

1.2.1. Longitudinal effects of WTFC and FTWC on mental health (actor effects)

A key theoretical framework that guided our research is the conservation of resources theory (COR, Hobfoll 1989, 2001). It proposes that individuals obtain and maintain a range of resources, defined as conditions, personal characteristics, energies, and objects. Here, the first three categories are of particular interest. Under conditions we include status, such as being married or having significant job security. Personal characteristics are described as resources that help to resist stress, like self-esteem or optimism, while energies such as knowledge, time, and money aid the acquisition of other resources. COR theory proposes that these resources are interrelated but resource loss is more powerful than resource gain, meaning that acquiring new resources will not necessarily compensate for a threat to one's current resources (Hobfoll and Schumm 2009). Stress, in this model, is seen as a reaction to a threatened or actual loss of resources, or a threat to an expected increase of resources following an investment of resources. For example, if a person invested time and knowledge at the workplace expecting to get a promotion, but a colleague got the promotion instead, the outcome could generate stress.

In accordance with COR theory (Hobfoll and Schumm 2009), stress can result from the depletion of a resource due to role conflicts: for example, if a person feels vulnerable to losing his or her job, he or she may feel pressured to invest more resources to avert the threat of job loss. Often, these resources are deducted from the family role, so that this role cannot be fully completed. This juggling between work and family spheres causes interrole conflict (WTFC or FTWC) that leads to stress due to lost resources (Grandey and Cropanzano 1999). Likewise, stress prompts a negative state of being in both roles, which in turn may lead to adverse health outcomes (Grandey and Cropanzano 1999). Meta-analyses and reviews provide support for a stronger link between WTFC and mental health compared to the association between FTWC and mental health, although the results vary depending on study samples, cultural contexts, and outcomes studied (Amstad et al., 2011; Borgmann et al., 2019; Greenhaus et al., 2006).

Although work-family research has included more longitudinal studies in recent years (Lapierre and McMullan 2016), they remain rather scarce, despite their advantage of illuminating directionality, causal relationships, and reciprocity (Zapf et al., 1996; Taris and Kompier 2003). In terms of health-related outcomes, to the best of our knowledge only a few studies longitudinally examined the association among WTFC, FTWC, and mental health. For example, Innstrand et al. (2008) analyzed a two-wave longitudinal study with eight different occupational groups in Norway, with a two-year time lag between exposure to WTFC (and FTWC) and burnout. They showed that WTFC and FTWC were both longitudinally related with poorer mental health.

Another study demonstrated a causal relationship between exposure to WTFC (but not FTWC) and exhaustion among employees of a company in the Netherlands, in a three-wave study with time lags of six weeks between the waves (Demerouti et al. 2004). A third study analyzed three waves of data, with time lags of six months and one year, from employees of a large company in Portugal (Neto et al., 2016). They did not differentiate between the two directions of conflict but still reported a causal relationship between WFC and mental health outcomes. However, other studies did not find significant effects of WFC (Hammer et al., 2005) or WTFC and FTWC (Rantanen et al., 2008) on depressive symptoms over time.

As the broad range of time lags in prior research suggests, the role of time in the health-related consequences of WTFC and FTWC remains an issue of academic discussion. Allen et al. (2019) contended in their review that no ideal time lag can be recommended, as assessment intervals depend on a variety of factors and it remains unknown how long it takes for WTFC or FTWC to cause health impairments. However, prior research suggests that time lags should not be too long: studies with shorter time lags of six weeks, one month, six months, and two years showed significant effects (Jensen 2016; Matthews, Wayne, and Ford 2014; Innstrand et al., 2008; Demerouti et al., 2004). By contrast, a study by Frone et al. (1997), who applied a time lag of four years, only found support for a longitudinal association between FTWC and health over time, but not for WTFC and health. The examination of two different lags of time (two and four years) in the present study gives us the opportunity to test shorter- and longer-term effects of WTFC and FTWC on depressive symptoms within the same study population. Drawing from theoretical considerations and prior research, we propose the following Hypothesis.

Hypothesis 1. WTFC and FTWC among men and women will have lagged, positive effects on their own depressive symptoms.

1.3. Crossover effects of WTFC and FTWC on mental health (partner effects)

Theoretical considerations (Westman 2001) and prior research (Debus and Unger 2017) also call for couple-based perspectives, as most people are deeply affected by those who are close to them. Specifically, Westman (2001) established crossover theory, suggesting that partners in an intimate relationship are prone to transmitting stressors between each other, which can lead to a synchronization of stress levels in a relationship. Hobfoll (1989) already considered this when developing COR theory: he argued that the threat of loss of a resource in one partner constitutes a further resource threat to the other partner, which can in turn worsen his or her response to his or her own threats of resource loss.

Thus, WTFC and FTWC, as resource losses or threats thereof, do not only affect the health of the subject but can crossover to people with whom the focal person maintains intimate social relationships and also impair their health. Most prior research on the associations among WTFC, FTWC and health, however, has focused on individuals and largely ignored the interdependent nature of couples, as argued by Greenhaus et al. (2006) and Yucel and Fan (2019). Among the few empirical studies that look at crossover effects in WFC, to our knowledge only a small proportion analyzes how one partner's WTFC or FTWC affects the other partner's mental health (Bakker et al. 2008; Symoens and Bracke 2015; Yucel and Latshaw 2020). Most of these studies are also based on cross-sectional data.

Of the two longitudinal studies, Hammer et al. (2005) employed U.S.-based data on dual-earner couples over two waves. They showed that WTFC (not FTWC) among husbands was associated with depressive symptoms among wives in the same wave, but WTFC among wives was not associated with depressive symptoms among husbands, and there were no longitudinal associations over a time lag of one year. On the contrary, Yucel and Fan (2019), using two waves with a two-year time lag, found significant effects of partners' FTWC (but not for WTFC) on mental health among men and women in Germany.

The existing research, though scarce and inconsistent, lets us build our Hypothesis on COR theory to predict a crossover process between partners in a dyad.

Hypothesis 2. WTFC and FTWC among men and women will have lagged, positive effects on their partners' depressive symptoms.

1.4. Reverse causation and reciprocal effects in the association among WTFC, FTWC and mental health

COR theory (Hobfoll 2001; Hobfoll and Schumm 2009) suggests that people with fewer personal resources will be more prone to further resource loss compared to people with ample resources, because fewer resources are available to accommodate external demands or to access new resources. For example, a person burdened with a mental health condition may have fewer resources available in one role to accommodate critical events or threats of loss in the other role, compared to a healthy person, and thus will experience higher levels of WTFC or FTWC.

When looking at the relationship among WTFC, FTWC, and mental health specifically, a small number of studies examined reverse causality with the outcome of emotional exhaustion, meaning that higher levels of emotional exhaustion led to higher scores in WTFC (Demerouti et al., 2004). On the other hand, Bergs et al. (2018) demonstrated that higher levels of FTWC (but not WTFC) led to poorer mental health over a two-year time span. Neto at al. (2016), Rubio et al. (2015), and Hall et al. (2010) did not differentiate between WTFC and FTWC but also showed a reverse causal relationship between WFC and mental health. However, Van Hooff et al. (2005) and Rantanen et al. (2008) did not find support for this Hypothesis in their research.

When both directions of association (e.g., higher levels of WTFC and FTWC lead to poorer mental health *and* poorer mental health leads to an increase in levels of WTFC and FTWC) operate simultaneously, a reciprocal relationship is in place that COR theory names the loss spiral. Loss spirals follow initial losses, where each loss leads to having fewer resources available for confronting the next loss or threat of loss (Hobfoll 2001). To adapt this approach for our research, we assume that WTFC and FTWC cause mental health impairment. This mental health burden, over time, causes higher levels of WTFC or FTWC resulting in even worse mental health; a loss spiral is in place.

Prior research provides evidence for the reciprocal Hypothesis and the bi-directional nature of the relationship between WFC and mental health. Bergs et al. (2018) reported a reciprocal relation between FTWC (but not WTFC) and depressive complaints. Demerouti et al. (2004) provided support for a reciprocal association between WTFC and emotional exhaustion. Furthermore, Neto et al. (2016) and Rubio et al. (2015) demonstrated a reciprocal association between WFC and mental health but did not differentiate between WTFC and FTWC. However, to our knowledge, no prior study empirically tested the partner effects in reverse causation and reciprocity when exploring the associations among WFTC, FTWC, and mental health.

On the basis of prior research and consistent with COR theory, we hypothesize a reverse causation and reciprocal relationship among WTFC, FTWC, and mental health.

Hypothesis 3a. Depressive symptoms among men and women will have lagged, positive effects on their own WTFC and FTWC.

Hypothesis 3b. Depressive symptoms among men and women will have lagged, positive effects on their partner's WTFC and FTWC.

Hypothesis 4a. There will be a reciprocal relationship between WTFC and FTWC among men and women and their own depressive symptoms.

Hypothesis 4b. There will be a reciprocal relationship between WTFC and FTWC among men and women and their partner's depressive symptoms.

1.5. Gender differences in the association among WTFC, FTWC and mental health

According to COR theory, resources can be unevenly distributed depending upon background characteristics such as gender (Hobfoll 1989, 2001). On average, for example, women spend more time than men doing unpaid household labor and caring for children and other relatives, irrespective of their employment status, which can result in resource depletion for women who work as much as their male partners. Furthermore, men usually spend more hours per week in paid employment, gaining higher salaries and more tenure, so they typically have more resources in the job role (Hagqvist et al., 2017). Hence, men and women may perceive the resource threat of WTFC and FTWC to different degrees, as practices around the work and family domains are shaped by gender norms (Hagqvist et al., 2017).

The available results on gendered differences in the effects of WFC on health-related consequences do not provide unequivocal information, as Hagqvist et al. (2017) and Lunau et al. (2014) pointed out in their research. One study found that WFC predicted worse self-rated health among women, but not among men, after controlling for health at baseline (Leineweber et al., 2013). Other studies showed no gender differences in the prediction of self-rated health (Emslie et al. 2004; Winter et al. 2006).

Research on gender differences in the associations among WTFC, FTWC, and mental health specifically, however, is scarce, with inconsistent results. While some studies found that WTFC is more strongly related to women's psychological health and exhaustion compared to men's (Canivet et al., 2010), other studies found that WTFC was equally harmful to the perceived exhaustion of both male and female workers, although this association was attenuated when controlling for mental health at baseline (Leineweber et al., 2013). A longitudinal study from Yucel and Fan (2019) paints a different picture. The association between WTFC and mental health as well as the association between FTWC and mental health were both found to differ by gender: results showed that both associations were stronger among men compared to women.

Overall, the current state of research on WFC does not permit a precise conclusion concerning differences between men and women (Kobayashi et al., 2017). Lunau et al. (2014) as well as Hagqvist et al. (2017) assumed that gender differences in WTFC and FTWC differ between countries, suggesting that cultural and political differences play an important role. In countries like Germany with rather traditional views of gender, culture and politics may shape the gendered occurrence and experience of WTFC and FTWC, as well as of adverse mental health conditions, due to country-specific work- and family-related legislation that may enforce traditional gender roles, such as parental leave schemes, work hours flexibility, and home office regulations. These circumstances help manifest gender role norms and expectations, as seen for example in women's labor market participation and the number of men and women working part time. These contextual characteristics can influence the gendered occurrence and experience of WTFC, FTWC and adverse mental health conditions at the country level (Lunau et al., 2014; Hagqvist et al., 2017; Bracke et al., 2020; McAllister et al., 2018). Thus, by applying our study to a single country we will have the opportunity to consider these specific contextual factors when analyzing gender differences in the associations among WTFC, FTWC and mental health, and when interpreting the results.

To our knowledge, no previous research has evaluated gender differences in the reverse and reciprocal association between adverse mental health conditions and WTFC or FTWC. Many previous studies only applied gender as a control variable (e.g., Bergs et al., 2018; Neto et al., 2016). However, we know that the prevalence of depressive symptoms as well as their antecedents differ significantly between men and women across all ages, socio-economic positions, and even geographic locations, and that women almost always show higher levels of self-reported or clinically diagnosed depression (Van de Velde et al., 2010). In line with COR theory, we assume gender differences exist in the reverse and reciprocal relationship among WTFC, FTWC, and mental health: women, due to their greater vulnerability towards depressive symptoms, may be dragged deeper into the loss spiral compared to men. This loss spiral might lead to

higher levels of WTFC and FTWC among women compared to men. However, prior research, as cited above, shows inconsistent results regarding gender differences in WTFC, FTWC, and health. Thus, we carefully drafted the following hypotheses for the present study.

Hypothesis 5a. The positive and significant lagged effects of WTFC and FTWC on one's own depressive symptoms will differ between women and men.

Hypothesis 5b. The positive and significant lagged effects of WTFC and FTWC on one's partner's depressive symptoms will differ between women and men.

Hypothesis 6a. The positive and significant lagged effects of depressive symptoms on one's own WTFC and FTWC will differ between women and men.

Hypothesis 6b. The positive and significant lagged effects of depressive symptoms on one's partner's WTFC and FTWC will differ between women and men.

2. Materials and methods

2.1. Data

In order to test these hypotheses, our study uses waves 6, 8 and 10 from the German Family Panel (pairfam) survey (Brüderl et al., 2019). We focus on waves 6 (2013/2014), 8 (2015/2016), and 10 (2017/2018) because these were the only three waves where WFC questions were included in the questionnaire. Pairfam is funded by the German Research Foundation and was approved by the ethics committee of the Faculty of Management, Economics, and Social Sciences of the University of Cologne. The original survey started in 2008 and included three birth cohorts: 1971–73, 1981–83, and 1991–93. Using stratified random samples from these three cohorts, a sample of 12,402 anchor persons was drawn. Pairfam data has a multi-actor panel design where each anchor is asked for permission to interview their partner, children, and parents in each wave (Brüderl et al., 2019). This study focuses on couples, so only information from the anchor and partner are used. Due to its multi-actor design, pairfam data is suitable to understand the dyads; thus, dyadic analyses are appropriate (Huinink et al., 2011; Müller 2019).

Interviews were conducted using CAPI (computer-assisted personal interviews). Further description of the data is available in Huinink et al. (2011). 1228 heterosexual couples remained in the sample between waves 6 and 10 where both the anchor and partner completed the questionnaire. We further limited our sample to the 631 married or cohabiting heterosexual couples where both partners stayed in the labor force (i.e., dual-earner couples) and in the same relationship between waves 6 and 10. The sample for the present study consists of men and women aged 20–43 years. Our sample is highly educated: more than half of the women and a little less than half of the men reported completing a high level of education. Work hours vary greatly from 2 to 60 h a week, with women working part-time more often (mean work hours per week: 29.46) compared to men, who tend to work full-time or more (mean work hours per week: 43.30).

2.2. Dependent variables

This study uses depressive symptoms as the dependent variable. Depressive symptoms are measured by using five items from the State-Trait Depression Scales (Spaderna et al. 2002). Respondents were asked the following five questions: "Please read each statement and indicate from among the four answers the one that corresponds to the way you feel in general. (1) My mood is melancholic; (2) I am depressed; (3) I am sad; (4) I am in desperation; (5) My mood is gloomy (1 = almost never to 4 = almost always)." All items were summed and then averaged to create a scale for each wave of data (i.e., waves 6, 8, and 10). Higher values on this scale indicate higher levels of depressive symptoms. Cronbach's alphas across all three waves range from 0.76 to 0.80 for men and 0.81–0.84 for women, indicating high internal reliability.

2.3. Independent variables

The main independent variable is WFC. We use two distinct forms of WFC, i.e., WTFC and FTWC. We focus on the measures on WTFC and FTWC which were adapted from Carlson et al. (2000) and translated into German by Wolff and Höge (2011). To measure WTFC, respondents were asked the following four questions: "To what extent do the following statements apply to you? (1) Due to my professional, vocational training, or university workload, my personal life suffers. (2) Even when I am doing something with my friends, partner, or family, I often think about work. (3) After a stressful time at 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 (1 = not at all to 5 = absolutely)." These four items were summed and averaged to create a continuous scale for WTFC. A higher number on the scale indicates higher levels of WTFC. We created this scale for WTFC for waves 6, 8 and 10. The Cronbach's alpha of this scale ranges from 0.76 to 0.78 for men and 0.80–0.82 for women, indicating high internal reliability.

During each wave, respondents were asked the following four questions to measure FTWC: "To what extent do the following statements apply to you? (1) Because I am often stressed 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 (1 = not at all to 5 = absolutely)." These four items were also summed and averaged to create a continuous scale for FTWC. A higher

number on the scale indicates higher levels of FTWC. We created this scale for FTWC for waves 6, 8, and 10. The Cronbach's alpha of this scale ranges from 0.72 to 0.75 for men and 0.70–0.82 for women, indicating high internal reliability.

Table 1 shows the Pearson correlations among the key independent variables and the dependent variable across different waves (see the supplementary material). The significant correlations between WTFC and FTWC for women across waves (ranging from 0.18 to 0.35) and for men (ranging from 0.25 to 0.40) are consistent with prior research, which suggests that WTFC and FTWC are low to moderately related but still distinct constructs (Voydanoff 2008; Byron 2005; Mesmer-Magnus and Viswesvaran 2005). Consistently with prior research (Bergs et al., 2018), we estimated the effects of WTFC and FTWC on depressive symptoms in separate models. The correlations between the control variables and our three main variables (WTFC, FTWC and depressive symptoms) range between −0.01 and 0.44, indicating low to moderate correlation (available upon request). Further, the variance inflation factors (VIF) among all the main independent and control variables were below 1.5, giving no evidence of multicollinearity.

2.4. Control variables

This study controls for variables that have been shown to be correlated with WTFC and/or self-reported general health and depressive symptoms (Bergs et al., 2018; Borgmann et al., 2019; Greenhaus et al., 2006; Kinnunen et al. 2004; Yucel and Fan 2019; Yucel and Latshaw 2020). Consistent with prior research that uses multiple waves of data and the same analytical approach as this study, we control for the baseline levels (i.e., in wave 6) of the time-invariant variables: age and education. For the time-variant control variables (work hours and presence of a preschool child living in the household), we use the measures for both variables from all three waves in our analyses, as supported in prior research (Cacioppo et al., 2010; Kindt et al., 2015). Age is measured as a continuous variable. Education is measured using the ISCED scale (Brüderl et al., 2019) and categorized into a dummy variable: having higher education (having completed a university degree or a higher education entrance qualification) versus not having higher education. Work hours are measured as a continuous variable. Presence of a preschool child living in the household is a dummy variable measuring whether the age of the youngest child living in the household is less than 6 years old (yes = 1, no = 0). Table 2 presents the descriptive characteristics and paired *t*-test results (for continuous variables) and cross-tabulation results (for categorical variables) to document gender differences in our independent and dependent variables, as well as in our control variables.

2.5. Analytical strategy

This study estimates ACLPM for dyadic longitudinal data. The autoregressive effects describe how stable individual differences are from one time point to the next. On the other hand, cross-lagged effects describe the effect of one construct on another construct that is measured at a later occasion (Selig and Little 2012). Specifically, we test the shorter-term effects with time lags of two years between

Table 1
Correlation matrix of main independent variables and dependent variable for men and women.

Variables	1	2	3	4	5	6	7	8	9
1.Women's WTFC at wave 6	–								
2. Women's WTFC at wave 8	.57***								
3.Women's WTFC at wave 10	.49***	——.64***	–						
4. Women's FTWC at wave 6	.34***	.22***	.24***	–					
5. Women's FTWC at wave 8	.18***	.30***	.26***	.53***	–				
6.Women's FTWC at wave 10	.18***	.24***	.35***	.46***	.53***	–			
7.Men's WTFC at wave 6	.06	.11**	.10*	.07	.06	.06	–		
8.Men's WTFC at wave 8	.09*	.12**	.09*	.11**	.06	.07	.70***	–	
9.Men's WTFC at wave 10	.07	.13**	.11**	.04	.11**	.12**	.58***	.63***	–
10. Men's FTWC at wave 6	.08*	.08	.10**	.16***	.13**	.11**	.38***	.30***	.25***
11. Men's FTWC at wave 8	.08*	.05	.09*	.21***	.15***	.14***	.33***	.40***	.30***
12. Men's FTWC at wave 10	.12**	.09*	.10*	.17***	.16***	.12**	.30***	.27***	.38***
13. Women's DS at wave 6	.28***	.21***	.20***	.29***	.17***	.15***	.04	.03	.07
14. Women's DS at wave 8	.16***	.24***	.20***	.22***	.28***	.21***	.04	.04	.08
15. Women's DS at wave 10	.19***	.25***	.28***	.25***	.26***	.31***	.11**	.05	.09*
16. Men's DS at wave 6	.10*	.11**	.08	.13**	.05	.07	.34***	.30***	.20***
17. Men's DS at wave 8	.11**	.15***	.13***	.08*	.09*	.08*	.27***	.37***	.29***
18. Men's DS at wave 10	.09*	.12**	.10*	.10*	.07	.14***	.26***	.26***	.35***
Variables	10	11	12	13	14	15	16	17	18
10.Men's FTWC at wave 6	–								
11.Men's FTWC at wave 8	.59***	–							
12.Men's FTWC at wave 10	.49***	-.52***	–						
13.Women's DS at wave 6	.02	-.20***	.07	–					
14.Women's DS at wave 8	.09*	-.01	.10**	.61***	–				
15.Women's DS at wave 10	.01	-.22***	.12**	.59***	.67***	–			
16.Men's DS at wave 6	.31***	-.28***	.25***	.18***	.14***	.12**	–		
17.Men's DS at wave 8	.18***	-.29***	.22***	.11**	.13***	.10**	.56***	–	
18.Men's DS at wave 10	.26***	-.23***	.33***	.12**	.15***	.13***	.58***	-.60***	–

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

Table 2
Descriptive statistics for the main dependent and independent variables, the German family panel (pairfam) couples (N = 631).

Variable	Range	Women	Men
		Mean (SD)	Mean (SD)
Dependent variables			
Depressive symptoms at wave 6	1–4	1.51***	1.41***
		(0.46)	(0 39)
Depressive symptoms at wave 8	1–4	1.46***	1.38***
		(0.44)	(0 39)
Depressive symptoms at wave 10	1–4	1.45***	1.37***
		(0.43)	(0.41)
Independent variables			
WTFC at wave 6	1–5	2.28***	2.49***
		(0.93)	(0.89)
WTFC at wave 8	1–5	2.25***	2.47***
		(0.92)	(0.89)
WTFC at wave 10	1–5	2.32**	2.46**
		(0.93)	(0.90)
FTWC at wave 6	1–5	1.65	1.62
		(0.64)	(0.60)
FTWC at wave 8	1–5	1.61	1.60
		(0.66)	(0.62)
FTWC at wave 10	1–5	1.61	1.60
		(0.63)	(0.61)
Control variables			
Age at wave 6	W:16–52/M:20-56	36.75***	39.12***
		(6.13)	(6.14)
High education at wave 6	0–1	0.53***	0.47***
Work hours at wave 6	W:2–75/M:3-84	29.46***	43.30***
		(12.47)	(9.42)
Work hours at wave 8	W:2–65/M:3-85	30.17***	43.09***
		(11.64)	(8.63)
Work hours at wave 10	W:2–70/M:5-80	30.78***	42.57***
		(11.42)	(7.55)
Presence of preschool child at wave 6	0–1	0.32	0.32
Presence of preschool child at wave 8	0–1	0.19	0.19
Presence of preschool child at wave 10	0–1	0.11	0.11

Note: WTFC = Work-to-family conflict; FTWC=Family-to-work conflict. We use paired *t*-tests to test differences in means (for continuous variables) between women and men within a couple. W: Women, M: Men. *$p < .05$, **$p < .01$, ***$p < .001$ (two-tailed tests). Standard deviations are in parentheses. Higher scores indicate higher levels of depressive symptoms and higher levels of work-to-family and family-to-work conflict.

waves 6 and 8 and waves 8 and 10, and longer-term effects with a time lag of four years between waves 6 and 10. All these analyses are estimated using Structural Equation Modeling (SEM) in Amos 22.0. Maximum likelihood estimation is performed for any missing data. The main challenge in dyadic data analysis is that dyad members are not independent from each other, which violates the independence assumption for any regression analyses. In order to control for this non-independence between dyad members, error terms between men and women are allowed to correlate, and all models are fitted with robust standard errors (Brömmelhaus et al. 2020).

This approach allows us to empirically test the actor and partner effects for directional influences between variables or reciprocal effects over time for both dyad members simultaneously (Ackerman et al., 2012; Nestler et al. 2015). Specifically, we test the direct causal effect of one's own WTFC and FTWC on one's own depressive symptoms (i.e., actor effects) as well as the effect of one's partner's WTFC and FTWC on one's own depressive symptoms (i.e., partner effects) over time. In addition, ACLPM also allows us to test reverse causation, so we test the actor and partner effects of one's own (and partner's) depressive symptoms on their own WTFC and FTWC over time. Finally, ACLPM enables us to test the reciprocal relationship among WTFC, FTWC and depressive symptoms simultaneously.

Given the evidence from prior research that WTFC and FTWC are conceptually and empirically related but distinct constructs (Bergs et al., 2018; Matthews et al., 2014; Voydanoff 2008), the models that we run are estimated separately for WTFC and FTWC. This study uses a similar approach to prior research (Bergs et al., 2018; Hakanen and Schaufeli 2012; Shek and Zu 2019; Seiffge-Krenke et al., 2013). As shown in Table 3, the baseline model (M1) includes only the autoregressive effects for men and women simultaneously. Model 2 (M2) shows the work-to-family effects model, which adds the paths for cross-lagged actor effects to M1. Model 3 (M3) adds constraints to M2 where the paths for the cross-lagged actor effects are constrained to be equal between men and women. Model 4 (M4) adds partner effects to M3 where we test the effect of men's (and women's) own WTFC and FTWC on their partner's depressive symptoms. Model 5 (M5) adds constraints to M4 where the partner effects are constrained to be equal between men and women.

Models 6–9 test reverse causation, i.e., the effect of depressive symptoms on WTFC and FTWC. Model 6 (M6) tests reverse causation where the cross-lagged actor effects from depressive symptoms to WTFC and FTWC are added. Model 7 (M7) adds constraints to M6 where the actor effects in reverse causation are constrained to be equal between men and women. Model 8 (M8) adds partner effects to M7. Model 9 (M9) adds constraints to M8 where the partner effects are constrained to be equal between men and women. Model 10

Table 3
Fit indices for nested models predicting depressive symptoms for models using only WTFC and FTWC.

	Models using WTFC							Models using FTWC					
Models	df	chi-square	CFI	Comparison	Δχ2	Δdf	RMSEA	df	chi-square	CFI	Comparison	Δχ2	Δdf	RMSEA
Direct causation														
Model 1: autoregressive effects only	38	58.111	0.99	M1-M2	14.222	6	0.03	38	72.117	0.98	M1-M2	23.966	6	0.04
Model 2: cross-lagged actor effects	32	43.889	0.99	M2-M3	6.330	3	0.03	32	48.151	0.99	M2-M3	2.778	3	0.04
Model 3: gender differences in cross-lagged actor effects	35	50.219	0.98	M3-M4	7.127	6	0.04	35	50.929	0.99	M3-M4	10.753	6	0.03
Model 4: cross-lagged partner effects	29	43.092	0.99			0.04		29	40.176	0.99		0.03		
Reverse causation														
Model 6: cross-lagged actor effects	32	38.354	0.99	M1-M6	19.757	6	0.02	32	55.101	0.99	M1-M6	17.016	6	0.04
Model 7: gender differences in cross-lagged actor effects	35	44.866	0.99	M6-M7	6.512	3	0.03	35	58.940	0.99	M6-M7	3.839	3	0.03
Model 8: cross-lagged partner effects	29	37.755	0.99	M7-M8	7.111	6	0.03	29	56.228	0.99	M7-M8	2.712	6	0.03
Reciprocal relationship														
Model 10: reciprocal effects	32	36.093	0.99	M1-M10	22.018	6	0.02	32	39.230	0.99	M1-M10	32.887	6	0.03
				M3-M10	7.892	3					M3-M10	21.188	3	
				M7-M10	13.245	3					M7-M10	13.177	3	

Note: These models all control for the following control variables: age, education, work hours, and presence of preschool child living in the household. Due to the lack of partner effects for models that include WTFC and FTWC separately, we do not estimate Models 5 and 9 (as described in the analytical strategy section) which would test the gender differences in partner effects. WTFC = work-to-family conflict; FTWC = family-to-work conflict; CFI = comparative fit index; Comparison = List of models that are compared; Δχ2 = Chi-square difference; RMSEA = root mean square error of approximation. Higher scores indicate higher levels of WTFC, FTWC and higher levels of depressive symptoms. The model in bold (i.e., Model 10) is the best-fitting model for analyses that estimate WTFC and FTWC separately.

(M10) tests the combination of direct causation, reverse causation, and reciprocal effects, where all paths are included in the same model.

All of these are nested models. Thus, for all model comparisons, we use chi-square difference tests. For each chi-square test, we test whether there is a significant difference between the estimated model compared to the prior model. When the difference between two models is significant, the unconstrained model with fewer degrees of freedom is preferred. On the other hand, when the difference is not significant, the constrained model with more degrees of freedom is preferred (Kenny and Cook 1999). All models in Table 3 are adjusted for the control variables. The bold text in Table 3 under both columns shows the best-fitting models for depressive symptoms when the estimated models include WTFC and FTWC, respectively. In addition, the unstandardized coefficients and robust standard errors for the best-fitting model for both WTFC and FTWC (i.e., Model 10) are displayed in Table 4 (see also Figures A1 and A2 for graphical display in the supplementary material).

Table 4
Autoregressive and cross-lagged effects from the best-fitting model (model 10) for WTFC, FTWC and depressive symptoms.

	MODEL 10 WITH WTFC ONLY			MODEL 10 WITH FTWC ONLY		
Effect	B	β	SE	b	β	SE
Autoregressive						
Women WTFC W6 → Women WTFC W8	.537***	.548	.036			
Women WTFC W8 → Women WTFC W10	.514***	.509	.037			
Women WTFC W6 → Women WTFC W10	.183***	.185	.044			
Men WTFC W6 → Men WTFC W8	.659***	.677	.031			
Men WTFC W8 → Men WTFC W10	.443***	.432	.040			
Men WTFC W6 → Men WTFC W10	.242***	.239	.039			
Women FTWC W6 → Women FTWC W8				.526***	.513	.042
Women FTWC W8 → Women FTWC W10				.360***	.389	.039
Women FTWC W6 → Women FTWC W10				.238***	.235	.045
Men FTWC W6 → Men FTWC W8				.589***	.573	.040
Men FTWC W8 → Men FTWC W10				.327***	.330	.038
Men FTWC W6 → Men FTWC W10				.290***	.296	.053
Women DS W6 → Women DS W8	.568***	.585	.042	.588***	.634	.041
Women DS W8 → Women DS W10	.475***	.482	.039	.448***	.456	.038
Women DS W6 → Women DS W10	.258***	.269	.027	.268***	.302	.037
Men DS W6 → Men DS W8	.534***	.516	.044	.555***	.509	.033
Men DS W8 → Men DS W10	.378***	.370	.035	.391***	.379	.040
Men DS W6 → Men DS W10	.369***	.362	.029	.340***	.335	.035
Cross-lagged						
Women WTFC W6→ Women DS W8	.022*	.045	.011			
Women WTFC W8→ Women DS W10	.017*	.040	.007			
Women WTFC W6 → Women DS W10	.001	.002	.017			
Men WTFC W6→ Men DS W8	.022*	.048	.011			
Men WTFC W8→ Men DS W10	.017*	.042	.007			
Men WTFC W6 → Men DS W10	.001	.003	.017			
Women FTWC W6→ Women DS W8				.020	.033	.016
Women FTWC W8→ Women DS W10				.048**	.075	.018
Women FTWC W6→ Women DS W10				.022	.038	.019
Men FTWC W6→ Men DS W8				.020	.031	.016
Men FTWC W8→ Men DS W10				.048**	.078	.018
Men FTWC W6→ Men DS W10				.022	.036	.019
Women DS W6→ Women WTFC W8	.142**	.075	.051			
Women DS W8→ Women WTFC W10	.130*	.052	.065			
Women DS W6→ Women WTFC W10	-.020	-.012	.069			
Men DS W6→ Men WTFC W8	.142**	.073	.051			
Men DS W8→ Men WTFC W10	.130*	.050	.065			
Men DS W6→ Men WTFC W10	-.020	-.016	.069			
Women DS W6→ Women FTWC W8				.036	.028	.034
Women DS W8→ Women FTWC W10				.110**	.059	.039
Women DS W6→ Women FTWC W10				.001	.005	.040
Men DS W6→ Men FTWC W8				.036	.030	.034
Men DS W8→ Men FTWC W10				.110**	.062	.039
Men DS W6→ Men FTWC W10				.001	.004	.040

Note: WTFC = work-to-family conflict, FTWC = family-to-work conflict; DS = depressive symptoms; b = unstandardized regression coefficients; β = standardized regression coefficients, SE = robust standard errors. These models all control for the following control variables: age, education, work hours, and presence of preschool child living in the household. Higher scores indicate higher levels of WTFC, FTWC and higher levels of depressive symptoms.
*$p < .05$. **$p < .01$. ***$p < .001$.

3. Results

3.1. Descriptive findings

Overall, as shown in Table 2, both men and women reported low levels of depressive symptoms: 1.37–1.41 and 1.45–1.51 (in a range of 1–4), respectively, where a higher score indicates higher levels of depressive symptoms. There are significant gender differences in depressive symptoms; women report higher levels of depressive symptoms than men at each wave ($p < .001$). In addition, both men and women report moderate levels of WTFC and low levels of FTWC (2.46–2.49 and 2.25–2.32 for WTFC, respectively, and 1.60–1.62 and 1.61–1.65 for FTWC, respectively). The scale ranges from 1 to 5 and higher scores indicate higher levels of WTFC and FTWC. Overall, men report significantly higher levels of WTFC than women at each wave. There is no significant difference in FTWC, however. In this sample, compared to the baseline (i.e., wave 6), men are significantly older than women ($p < .001$) and work more hours than women (43 vs. 29 h per week, $p < .001$). On the other hand, more women have a higher education than men (53 vs. 47 percent, $p < .001$).

4. Results from ACLPM

Table 3 (Column 1) shows the model fit of each model that is estimated using only WFTC in the analyses. The baseline model (M1) includes only the temporal stability (i.e., autoregressive) effects between waves 6 and 8, between waves 8 and 10, and between waves 6 and 10 for both men and women. M2, which adds the cross-lagged actor effects from one's own WTFC to one's own depressive symptoms, is compared to the prior model. Results shows that M2 has better model fit ($\Delta\chi^2_{(6)} = 14.222$, $p < .05$). M3, which constrains the cross-lagged actor effects to be equal between men and women, is compared to M2. Results show that allowing separate actor effects for men and women is not a better fit ($\Delta\chi^2_{(3)} = 6.330$, $p > .05$), suggesting that M3 is preferred to M2. This indicates that there are no gender differences in cross-lagged actor effects between men and women. M4 adds the partner effects to the prior model. Adding paths for partner effects, however, worsened the prior model ($\Delta\chi^2_{(6)} = 7.127$, $p > .10$), indicating that there are no partner effects for WTFC on depressive symptoms. Thus, M3 is preferred to M4. Due to the lack of partner effects, we do not estimate M5, which tests whether there are gender differences in cross-lagged partner effects of WTFC on depressive symptoms.

M6–M9 test the same effects for the reverse causation model. M6 includes the cross-lagged actor effects, featuring paths directly from the depressive symptoms to WTFC. This model is compared to M1, which has only autoregressive effects. Results show that adding the cross-lagged actor effects in the reverse causation model improve the baseline model (M1) (($\Delta\chi^2_{(6)} = 19.757$, $p < .01$). M7 constrains the cross-lagged actor effects of depressive symptoms to be equal between men and women. Results show that allowing separate actor effects for men and women in the reverse causation model is not a better fit ($\Delta\chi^2_{(3)} = 6.512$, $p > .10$), suggesting that M7 is preferred to M6. This indicates that there are no gender differences in cross-lagged actor effects between men and women in the reverse causation model. M8 adds the cross-lagged partner effects for depressive symptoms. Adding cross-lagged partner effects worsened the prior model ($\Delta\chi^2_{(6)} = 7.111$, $p > .10$), indicating that there are no cross-lagged partner effects of depressive symptoms on WTFC. Thus, M7 is preferred to M8. Due to the lack of partner effects in the reverse causation model, we do not estimate M9, which tests whether there are gender differences in the cross-lagged partner effects of depressive symptoms on WTFC.

Finally, M10 tests reciprocal effects between WTFC and depressive symptoms, including all the paths from the direct causal effect of WTFC on depressive symptoms as well as the paths for reverse causation which show the effect of depressive symptoms on WTFC. The fit indices show that M10 yielded a better model fit compared to the baseline model (M1) ($\Delta\chi^2_{(6)} = 22.018$, $p < .01$), the best-fitting model for direct causation (M3) ($\Delta\chi^2_{(3)} = 7.892$, $p < .05$), and the best-fitting model for reverse causation (M7) ($\Delta\chi^2_{(3)} = 13.245$, $p < .01$).

Table 3 (Column 2) shows the model fit of each model that is estimated using only FTWC in the analyses. The same analyses are estimated using the chi-square tests. Overall, the best-fitting model, consistent with the analyses for WTFC, is M10, which tests the reciprocal relationship between FTWC and depressive symptoms. Overall, the fit indices show that M10 yielded a better model fit compared to the baseline model (M1) ($\Delta\chi^2_{(6)} = 32.887$, $p < .001$), the best-fitting model for direct causation (M3) ($\Delta\chi^2_{(3)} = 21.188$, $p < .001$), and the best-fitting model for reverse causation (M7) ($\Delta\chi^2_{(3)} = 13.177$, $p < .01$).

Overall, the results from M10 (Table 4, Column 1) show that for both men and women, the cross-lagged actor effects for WTFC between waves 6 and 8 are significant, as well as those between waves 8 and 10, for both the direct causation and reverse causation models simultaneously. On the other hand, the same effects for either the direct causation or reverse causation models between waves 6 and 10 are not significant for both men and women. In addition, the results from M10 (Table 4, Column 2) show that all the paths for direct causation and reverse causation simultaneously between waves 8 and 10 are significant, for both men and women, whereas the direct causal effect of FTWC at wave 6 on depressive symptoms at waves 8 and 10 or the reverse causal effect of depressive symptoms at wave 6 on FTWC at waves 8 and 10 for both men and women are not significant.

Out of the control variables, for the two best-fitting models in Table 4 (available upon request), women with higher education and older men reported significantly lower levels of depressive symptoms. On the other hand, men who work longer hours and women with a preschool child living in the household reported significantly higher levels of depressive symptoms. Overall, the results from the two best-fitting models conclude that Hypotheses 1, 3a, and 4a are supported, which highlight the three models (i.e., direct causation, reverse causation, and reciprocal relationships between WTFC, FTWC, and depressive symptoms) respectively. On the other hand, the hypotheses for partner effects in these three models (i.e., Hypotheses 2, 3b, and 4b) are not supported. Finally, the hypotheses for the gender differences in either direct or reverse causation (i.e., Hypotheses 5a, 5b, 6a, and 6b) are not supported.

As shown in Table 4, all the autoregressive coefficients for WTFC, FTWC, and depressive symptoms between waves 6 and 8, waves 8

and 10, and waves 6 and 10, for both men and women, are significant ($p < .001$). The autoregressive coefficients for WTFC, FTWC, and depressive symptoms for both men and women indicate moderate to high temporal stability across all three waves. This suggests that all three constructs are stable over time. In addition, the size of the autoregressive effects gets smaller for the path between waves 6 and 10 for all these three constructs.

5. Discussion

Using ACLPM and longitudinal data from 631 married and cohabiting couples in waves 6, 8, and 10 of the pairfam data, this study examines the direct causal effects of WTFC and FTWC on depressive symptoms, as well as the effects for reverse causation and the reciprocal relationship between WTFC and depressive symptoms, as well as between FTWC and depressive symptoms. In addition, using dyadic data analysis, this study tests the actor and partner effects for men and women, as well as potential gender differences in these actor and partner effects.

First, our results show evidence for a reciprocal relationship among WTFC, FTWC, and depressive symptoms. There are significant cross-lagged actor effects between WTFC and depressive symptoms (and vice versa) between waves 6 and 8 and between waves 8 and 10. On the other hand, there are significant cross-lagged actor effects between FTWC and depressive symptoms (and vice versa), but only between waves 8 and 10. There is no evidence, however, for the longer-term cross-lagged effects for either WTFC or FTWC (i.e., between waves 6 and 10). The results show no partner effects for either WTFC or FTWC. In addition, the models do not show any evidence of gender differences in these cross-lagged actor effects, whether in direct causation or reverse causation.

The significant actor effects for WTFC and FTWC on depressive symptoms are in line with COR theory (Hobfoll 1989, 2001; Grandey and Coprazano 1999): the reconciliation of work and family lives can lead to a permanent reallocation of resources from one role to the other and, thus, the feeling of not being able to fulfill either role. The resulting stress leads to a negative state of being (Grandey and Coprazano 1999), which is seen as the source of adverse health outcomes of WTFC and FTWC, as supported by prior research (Yucel and Fan 2019; Bergs et al., 2018; Neto et al., 2016; Innstrand et al., 2008; Demerouti et al., 2004). However, these associations seem to be only in effect over a shorter time lag of two years and diminish when looking at the longer four-year time lag. This finding is consistent with the argument that "the temporal stability coefficients do trend down as a function of time lag length (they are weaker for the longer lag)" (Matthews et al., 2014: 1181).

The constructs WTFC and FTWC are stable over the entire research period of four years (three waves), which is consistent with prior research (Bergs et al., 2018; Matthews et al., 2014). Thus, the shorter-term nature of association may be explained with adaptation theory, which assumes that people can adapt to adverse conditions over time (Brickman et al. 1978). Applied to the present analyses, this may indicate that WTFC and FTWC have a shorter-term effect on health but also create conditions that people can adapt to, so their adverse health effects diminish over time as adaptation increases.

Regarding partner effects, our results do not show any evidence for an association among WTFC, FTWC, and depressive symptoms. In prior research, longitudinal effects have only been shown for one partner's FTWC (not for WTFC) on the other partner's mental health, with the coefficient being too small despite its significance (Yucel and Fan 2019), while other prior work reported no association at all (Hammer et al., 2005). Although COR theory sees a person as a nested self within intimate relationships, who is influenced by resource gains and losses from, e.g., their partner (Hobfoll 2001), the threat that comes from intimate partners' potential conflicts may not be strong enough for the actors' resources that it results in adverse health outcomes in the actor two years later. Prior research suggested that the effect size may be greater when studying shorter time lags in WFC research in general (Matthews et al., 2014), so future research should investigate whether partners' WTFC and FTWC have an effect when looking at shorter time lags. Moreover, it could be harder for partner effects to emerge since they are more indirect compared to actor effects. Partner effects require transmission between partners and therefore are expected to depend on additional relationship-specific variables, such as the partners' closeness and level of communication (Kenny and Cook 1999; Westman 2001). Additionally, qualitative designs may be applied to better understand when and how partner effects occur.

Furthermore, our results indicate that the best-fitting model is the one testing reciprocal associations among WTFC, FTWC, and health simultaneously. This is supported by COR theory and the concept of the "loss spiral," both of which treat WTFC, FTWC, and depressive symptoms as a predictor *and* outcome. The resulting vicious cycle of resource loss, which ultimately leads to a depletion of resource reserves and thus to exhaustion and adverse health outcomes, has also been shown in prior research (Bergs et al., 2018; Neto et al., 2016; Demerouti et al., 2004). This reciprocal relationship, however, only was found for the actor effects, not for partner effects. That difference may also be explained by the aforementioned argument by Matthews et al. (2014), who suggested that the effect of partners' depressive symptoms on the actors' WTFC or FTWC is too small and short-term—or underlies too high fluctuations—to be detected with the time lags applied in our study. As suggested by Allen et al. (2019), experience sampling designs, which focus on a high number of repeated measurements in a relatively short period of time, such as daily measurements over 5 or 10 days, may be a direction for future research regarding partner effects in the association among WTFC, FTWC, and mental health.

Lastly, the results do not provide evidence for gender differences in the association among WTFC, FTWC, and depressive symptoms for direct causation or reverse causation models. In prior research, some scholars have concluded that the effects are similar for both genders (Lunau et al., 2014; Winter et al. 2006), whereas others found a stronger effect among women for outcomes such as self-rated health (Kobayashi et al., 2017; Leineweber et al., 2013) and still others found a stronger effect among men for outcomes such as mental health (Yucel and Fan 2019). These inconsistent results might be due to variations across studies in terms of different measures for WTFC and FTWC, different analytical approaches (longitudinal or cross-sectional data), different characteristics of the sample (focusing on women and men separately instead of using couple-level data), or different source countries (and therefore different contextual characteristics). Also, gender differences may be substantially present when looking at the occurrence of WTFC and FTWC,

as the present study's descriptive findings suggest: men reported WTFC at significantly higher levels than women. This may be the case because of gender role norms regarding unpaid household labor and care for children and other relatives, along with, for example, longer paid work hours for men compared to women, which are very prevalent in Germany. However, these differences may diminish once looking at the outcomes of WTFC and FTWC, meaning that both men and women are equally burdened with health impairments once they experience the conflict.

Gender differences are also absent in the reverse causal association between depressive symptoms and WTFC, as well as between depressive symptoms and FTWC, meaning that although women in our sample report higher levels of depressive symptoms compared to men, their effect on WTFC and FTWC is the same for both genders. This is in line with prior research (Leineweber et al., 2013) and supports the argument that gender—and the social roles that may come along with it—has an effect on the occurrence of WTFC (and FTWC) itself (Lunau et al., 2014; Hagqvist et al., 2017), but not on adverse health outcomes. For the reverse and reciprocal associations, our study does not show significant differences in the levels of depressive symptoms between men and women. Although COR theory would argue that women, due to their greater vulnerability towards depressive symptoms, may be dragged deeper into the loss spiral compared to men, this does not apply to the sample presented in this paper.

These results suggest that in Germany, a country with rather traditional gender roles around work and family spheres, gender does not moderate the association between prior health impairments and levels of WTFC (and FTWC). Thus, other variables such as flexible work schedules and family support should be taken into account: as Byron (2005) outlined, they can serve as possible moderators in the associations among WTFC, FTWC and mental health. In addition, complementing prior empirical research, qualitative research among couples should be conducted in future studies to gain a deeper understanding of the (un-)gendered nature of associations among WTFC, FTWC and depressive symptoms.

5.1. Limitations and contributions

The interpretability of the presented results does not come without limitations. First, the outcome (depressive symptoms) was measured as a self-report. Although the scale has been tested and validated, self-reports can be biased towards more positive responses when collected in personal interviews, e.g. through mechanisms of social desirability. Future research should include objective health measures, such as cortisol levels as indicators for stress (Allen and Martin 2017). Second, the temporal nature of the constructs of WTFC and FTWC has not been addressed to its full extent. Allen et al. (2019) concluded, after an extensive review of available longitudinal research on WFC, that studying the passage of time in WFC research is crucial to understanding issues such as the trajectories in and out of WTFC and FTWC over time, possible starting and ending points of WTFC and FTWC in time, and how long WTFC and FTWC may prevail over time, as they do not "have a naturally occurring growth pattern" (2019: 252). Some prior research has examined the transition in and out of WTFC and FTWC over time (Cooklin et al., 2016; Dinh et al., 2017). As the scholarly discussion on these issues remains inconclusive, however, we suggest that longitudinal qualitative studies may shed light on individual perceptions of WFC, perhaps through diary studies and in-depth interviews.

Third, consistent with some prior research (Bergs et al., 2018), this study did not want to overcontrol the analyses but instead focused on the control variables that were shown to be associated with our main variables in prior research. Future research could explore a wider range of variables and take their effects into account in their analyses. For example, the experience of conflicts between work and family roles and the extent to which the levels of WTFC and FTWC are associated with depressive symptoms may also be influenced by individual characteristics such as neuroticism and the level of perceived self-efficacy, which could be included as antecedents of WTFC and FTWC or as moderator variables in the reciprocal associations among WTFC, FTWC and mental health (Allen et al., 2012).

Fourth, the original wording of the scale measuring WTFC and FTWC (Carlson et al., 2000) refers to "families" only, whereas the adapted version in the present analysis is formulated more generally and refers to "personal life", "family, partner, and friends". Prior research, however, has already validated the adapted scale for both the WTFC and FTWC constructs, strongly suggesting that "personal life" is widely understood as "family" in the context of the dual-earner couples examined (Yucel and Fan, 2019). However, a broader conceptualization of the non-work domain as "personal life" instead of "family" should be investigated in future research. Some scholars have already called for more construct clarification (Kossek and Lee, 2017). Others emphasized the wider and more inclusive nature of work–life constructs and argue that the inclusion of non-work domains beyond the family, such as time with friends or even alone, will generate a "wider comprehension about [the] life balance and an individual" (Joseph and Sebastian 2019, p. 63).

Furthermore, it may be the case that people who were extremely burdened by adverse health conditions, WTFC, or FTWC, did not become part of the sample initially because they refused to participate or dropped out of the panel (Symoens and Bracke 2015). Along with the exclusion of same-sex couples and other family constellations, as well as the general loss-to-follow-up that is experienced in longitudinal data, this may have led to an impairment of the data, making it not fully representative of and thus not entirely generalizable to the German general population. Finally, due to data limitations, we were unable to examine positive spillover between work and family perspectives, i.e. work–family enrichment (WFE). WFE scholars look at positive health-, life-, and work-related consequences that emerge from the reconciliation of paid employment and unpaid household labor and care for children and other relatives (McNall et al. 2010). This concept may be of particular interest when studying couples (Symoens and Bracke 2015).

Despite these limitations, our study contributes significantly to the work, family, and health literature: Allen et al. (2019) and Allen and Martin (2017) pointed out in their reviews that prior research on the effects of WFC on well-being outcomes are mostly based on cross-sectional data. Only a few studies exist that test the causal direct, reverse, and reciprocal effects of WTFC, FTWC, and mental health using longitudinal data with more than two waves (Bergs et al., 2018; Neto et al., 2016; Demerouti et al., 2004). Our work adds to the scarce body of research based on three or more waves and empirically tests direct causation, reverse causation, and reciprocal

relationship simultaneously. Moreover, it is the first to also examine the actor and partner effects as well as gender differences in the association among WTFC, FTWC, and depressive symptoms. Future research could, however, benefit from replicating this study by using more than three waves of data.

Similarly, other study designs such as experience sampling (Allen et al., 2019; Allen and Martin 2017) and extended conceptualizations of WTFC and FTWC, such as episodic WFC (Maertz and Boyan 2011), may enable researchers to look deeper into daily or weekly fluctuations in WTFC and FTWC and their respective health-related outcomes. Moreover, to better understand gender effects, further research should refer to intersections of gender and other social determinants of health, such as education, income, and job status (Marmot 2005), or even socio-cognitive determinants of health such as gender roles and traits (Mayor 2015). Lastly, by operating in the context of Germany, this study contributes to understanding differences in the association among WTFC, FTWC, and health between men and women, along with its impact on health in a country where work and family roles are still highly gendered and where institutionalized support could more effectively transform these roles into more egalitarian systems. Given the persistent gaps in women's labor market participation, weekly work hours, and share of children in daycare facilities between East and West Germany (Hobler et al. 2020), future research, given a sufficient sample size, could explore the differential effects of WTFC (and FTWC) on depressive symptoms over time between East and West Germany. Along the same lines, comparative longitudinal research between countries may help to understand the role of promoting gender equality and sufficient reconciliation policies in the association among WTFC, FTWC, and health.

5.2. Implications for policy and practice

The negative effect of WTFC and FTWC on health, as shown in the present study, calls for political and practical actions. In Germany, enhancing the reconciliation of the work and family spheres has already been a legislative priority, as evidenced by its expansions of childcare facilities, reforms of parental leave policies, and the recent introduction of a reliable full-day care for elementary schools. However, although such initiatives and programs aim to convince employers to enact family-friendly policies such as working from home and flexible work hours, a recent study reported room for improvements in this field (Federal Ministry for Family Affairs, Senior Citizens, Women and Youth, 2019). They particularly emphasized that providing family-friendly measures alone is not sufficient unless the corporate culture becomes family-friendly itself.

This step would require, among other things, understanding that paid and care work is equally important—and putting that understanding into practice. Positive examples of a family-friendly culture in companies include job-sharing constructs, in which two employees with part-time contracts share one job; actively approaching expectant mothers and fathers about their plans for parental leave; and providing free and anonymous mental, personal, and legal counsel for employees. Against the background of the present study's findings, creating and nurturing a family-friendly company culture may also contribute to keeping employees healthy, reducing sick days and improving their overall performance.

6. Conclusion

In conclusion, the successful reconciliation of work and family lives is a relevant field of public and occupational health in Germany. The provision of a legal and cultural environment that enables men and women to reconcile work and family lives is crucial to alleviate the burden of WTFC and FTWC. The reverse association and the reciprocal effects among WTFC, FTWC, and mental health, however, put a special emphasis on men and women who were already burdened with mental health issues before experiencing WTFC or FTWC.

Declarations of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssresearch.2021.102684.

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