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## Working Remotely During the COVID 19-Pandemic: Work and Non-Work Antecedents of Work–Life Balance Development

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**Title:** Working Remotely During the COVID 19-Pandemic: Work and Non-Work Antecedents of Work–Life Balance Development

**Year:** 2023

**Version:** Accepted manuscript

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### **Please cite the original version:**

Mäkelä, L., Kemppinen, S., Pensar, H. & Kangas, H. (2023). Working Remotely During the COVID 19-Pandemic: Work and Non-Work Antecedents of Work–Life Balance Development. In A-K. Abendroth & L. Lükemann (Eds.), *Flexible Work and the Family* (pp. 69-97). Contemporary Perspectives in Family Research, vol. 21. Emerald. <https://doi.org/10.1108/S1530-353520230000021003>

## **Working remotely during the COVID 19-pandemic: work and non-work antecedents of work-life balance development.**

### **Abstract**

This study investigates work and non-work antecedents for the work-life balance (WLB) development of remote employees during the COVID-19 pandemic. Longitudinal data (N=1146, T1; N=737, T2) was collected in May-June 2020 and December 2020 in one multinational company (MNC) in Finland. In data analysis, structural equation modeling with a cross-lagged panel model was utilized. The results revealed that during the pandemic, WLB slightly decreased. The quantitative job demands increased and predicted a decreased WLB at T2. Job autonomy decreased but did not have an effect on WLB development or buffer the negative effect of quantitative job demands on WLB. Time saved from commuting was positively related to WLB development, but the number of children living at home and the age of the youngest child had no statistically significant link to WLB development over time (similar finding for men and women). Although care responsibilities from the gender perspective is not the focus of our study, the additional analysis show that WLB at T1 was more challenging for women the more children they had, or the younger the youngest child was. For men, children did not make a difference for their WLB at T1. This finding indicates that WLB has been more challenging for mothers compared to fathers already when our first data had been collected, and the continuance of the pandemic did not change the situation in any direction. This research contributes to the knowledge about work and non-work related demands and resources as antecedents for WLB development during the pandemic. As a

practical implication during the pandemic, we suggest that employers should follow development for employees' WLB as a measure of wellbeing in remote work. In addition, the workload of remote employees should be followed, and time saved from commuting should be preserved as employees' non-work time and protected from work related tasks.

Keywords: Work-life balance, Autonomy, Workload, Parenthood, Commuting, Longitudinal study

## **Introduction**

Due to the corona pandemic, expert work has extensively moved from organizational sites to home offices. Remote work, that is, work that would normally be done at the employer's premises but has been agreed to be conducted externally relying on information technology (Bailey & Kurland, 2002; Garrett & Danziger, 2007), has become far more common than ever before. Yet working from home is blurring the boundaries between work and personal life, and has been found to influence remote employees' experiences of their work-life balance (WLB) (see Shirmohammadi, Au & Beigi (2022) for a review), which is defined as an employee's subjective perception of how successful they are in their commitments to their work (e.g. as an employee, supervisor) and non-work roles (e.g. as a partner, parent, friend). Paying attention to the interface of employees' work and personal life spheres (which is close to the concept of WLB) is important, and its negative development during the pandemic has lead to negative organizational outcomes, lower employee performance, and a higher intention to quit (Vaziri et al., 2020). Thus, there is a need to increase the knowledge about WLB in modern working life in order to ensure employee well-being, as well as the success of their employing organization. This study focuses on the antecedents and development of remote employees' WLB during the COVID-19 pandemic.

The interface (Bakker et al., 2011) or balance (Jamal et al., 2021; Syrek et al., 2013) between work and non-work life spheres has previously been studied with the help of the Job demands-resources (JD-R) theory. In these studies, work-life interface or WLB has been considered as an indicator of employee well-being. The JD-R model typically focuses only on the characteristics of the psychosocial work environment (Bakker & Demerouti, 2007; Demerouti et al., 2001), and only a few earlier studies take non-work related demands and resources into account (Bakker et al., 2005; Hakanen et al., 2008) as potential antecedents for employee well-being. However, taking into account the demands and resources from both life spheres may be especially important when phenomena involving both life spheres (e.g. WLB) is studied, and also when the main working environment is one's home. Therefore, this study adopts the JD-R model as its theoretical framework, and broadens its scope to also take into account non-work related demands and resources in the remote work context.

In the working life sphere, quantitative workload poses an essential risk for WLB (McCrea et al., 2011; Skinner & Pocock, 2008), and there is also some evidence that workload may increase with remote work (Allen et al., 2015) as seen during the pandemic (Carillo et al., 2021; Wang et al., 2021). Moreover, job autonomy has been found to be an important job resource that improves employees' well-being (Nahrgang et al., 2011), and which has potential to buffer the negative effects of job demands on well-being (see e.g. Schaufeli & Taris, 2014). Earlier literature about remote work has shown that job autonomy is one essential positive element (Golden & Veiga, 2008; Nakrošienė et al., 2019; Wang et al., 2021). In this study, quantitative workload and job autonomy are relatively considered as 'job demand' and 'job resource', having the potential to affect the development of remote employees' WLB. Furthermore, during the corona pandemic, the intensive period of remote working from home has increased the importance of issues from the non-work life sphere on employees' WLB. First, family role responsibilities (e.g. those related to parenting) are typical non-work demands linked to well-

being also in the context of remote work (Allen et al., 2015; Allen et al., 2021). The corona pandemic caused occasional lock-down of schools and restricted children to attend daycare normally, and it is likely that parents working from home frequently had to take care of their children during work hours. Thus, the situation in which remote employees' that have children living at home is approached as a non-work demand, with the potential to decrease their WLB. Although our focus in this chapter is not on gender related questions, worth for mentioning is that care responsibilities between men and women vary in different countries, women typically being more involved on them than men (Chung & van der Lippe, 2018; Poortman & Van Der Lippe, 2009; Zamarro & Prados, 2021). Remote working from home can contribute to a re-sharing of the responsibilities between parents and reposition the established gender roles at home. However, it is also possible that remote working cause different implications for women and men, and there is some evidence that the increasing home demands related to remote working have added burden specifically on mothers (Kenny & Yang, 2021; Zamarro & Prados, 2021). We do not dig deep on gender related questions in this chapter but take them account in the additional analysis, as reported in the discussion section. Furthermore, the time available for the non-work life sphere has increased because working from home saves time that was earlier used for commutes between work and home. Therefore, in this paper we also study the time saved from commuting as a non-work resource.

### *The Finnish context during the COVID-19 pandemic*

In Finland, where this study was conducted, a recommendation for remote working was given by the Government during both data collection rounds. It was only after 28 February 2022, that the Government issued a resolution ending the national recommendation on remote work (The Government decree VM/2022/34). The capital region of Finland had among the largest annual increases in the share of employed people usually working from home in 2020, compared to

the time before the pandemic. Also, the share of people transiting to remote work was recorded as the highest in the EU (Eurostat, 2021). The willingness to work remotely after the pandemic is also seen to be high in Finland, and as many as 90 % of the people working remotely wish to continue working from home after the pandemic at least 25% of the time (Tilastokeskus, 2021).

Restrictions and recommendations concerning, for example, restaurants, hobbies and social gatherings were also in place during the period of our data collection (Parliament of Finland, 2021). Furthermore, schools were closed and the parents of young children were recommended to keep the children at home from daycare between the 16<sup>th</sup> of March 2020 and 14<sup>th</sup> of May 2020 (Government decree A 191/2020). It was also advised to cut down contacts with elderly and people outside of people's own households. In Finland, it is not typical that several generations would live in a same household, and consequently, grandparents were not able to help with child care, and the possibilities to take care of elderly relatives was limited. During the first data collection, schools started to open after having been mainly closed for two months, and during the second data collection, schools were mainly open, although local closures and quarantines due to exposures were typical.

Although our focus in this chapter is not on gender related questions, worth mentioning is that in the gender division of housework and caring for children, Finland is among one of the most equal countries in EU. In 2016, in the EU, 93 % of women aged 25 to 49 (with children under 18) took care of their children on a daily basis, whereas in Finland the figure was 91 %. For men the percentage was 69% in the EU and 79 % in Finland. In the ranking of countries on the basis of their equity between women and men in daily childcare, Finland was the fourth most equal, and for housework and cooking, Finland was the fifth most equal (Eurostat: The life of women and men in Europe, 2021).

## **Job Demands- Resources theory**

The Job Demands–Resources (JD-R) theory is based on the idea that every job has its own characteristics, and that job demands and resources in particular help to explain the processes leading to either employee ill health or well-being (Bakker & Demerouti, 2007; Demerouti et al., 2001). Job demands refer to aspects of the job requiring physical or psychological effort, and are therefore usually related to physiological and psychological costs leading to ill-being (Kinnunen et al., 2011). Job resources may be instrumental in achieving work goals, and in stimulating personal growth and development (Demerouti et al., 2001; Demerouti et al., 2002). Having adequate job resources leads (via a motivational process) to well-being, and adequate job resources are likely to buffer the negative effects of job demands, thus compensating for the losses in energy that high job demands may cause (Schaufeli & Taris, 2014).

The JD-R theory has been found to be applicable in the context of work and personal life interaction (Bakker et al., 2011). Negative work-home interference has been shown to function as a job demand (Schaufeli & Taris, 2014, p. 64), and also as a negative well-being outcome (Bakker et al., 2011). Additionally, work-life balance has been studied with the help of the JD-R model (Syrek et al., 2013) in the context of remote work during the COVID-19 pandemic (Jamal et al., 2021).

JD-R theory focuses only on the characteristics of the psychosocial work environment, and ignores those factors that are not related to work. However, some studies (Bakker et al., 2005; Hakanen et al., 2008) have included home demands and resources in the ill health and motivational processes. In those studies, home demands and resources have not been found to play a specific (Hakanen et al., 2008) or less significant role than job demands and resources (Bakker et al., 2005) when work engagement or burnout are studied. However, as this particular study focuses on phenomena related to both work and non-work life spheres (i.e. the

development of WLB in the context of working from home), then non-work related demands and resources are worth including, in addition to those related directly to work.

### **Remote work and WLB**

Work-life balance refers to an employees' subjective experience of the compatibility between work and non-work activities (including family), in respect of their life priorities (Brough et al., 2014; Kalliath & Brough, 2008). A sense of balance is generated when individuals feel they can spend enough time and successfully respond to demands in roles they value (Brough et al., 2014; Casper et al., 2018; Greenhaus et al., 2003).

Traditionally, remote working has been considered as a means to improve employee work-life balance, and a way for employees to more efficiently reconcile their work and home commitments (Maruyama & Tietze, 2012). Earlier studies concerning the interface between employees' work and family lives (concepts closely related to WLB, although not exactly same) have shown that remote employees' experience lower levels of work-family conflict than those who work full-time on site (Madsen, 2006), and one meta-analysis showed that high-intensity remote working (more than 2.5 days / week) is related to lower work-family-conflict (Gajendran & Harrison, 2007). In addition, it has been found that the more extensive the remote work is, the less work interferes with family life, but the more family interferes with work life (Golden et al., 2006). Therefore, although it seems that a better work-life balance may be possible due to lowered work-to-family conflict (WFC), increased conflict arising from the family-to-work among remote employees indicates that the situation may not be that simple, and that both life spheres play an important role once the balance between life spheres is considered.

Previous research related to the interface of work and family/non-work (Golden et al., 2006; Lautsch et al., 2009; Madsen, 2006; Maruyama et al., 2009; Russell et al., 2009) has mainly been based on samples where the choice of remote working has been voluntary, or seen



primarily as a part time arrangement. Therefore, the results may not be relevant in the working life situations experienced in the COVID-19 pandemic, during which remote work has been very intensive and based on rules and strong recommendations (i.e. non-voluntary). So far, literature has shown that during the pandemic, WLB has been harder to achieve among parents who continued working outside their home, compared to those who worked from home (Del Boca et al., 2020). It has also been found that WLB remained relatively stable during the pandemic, despite some positive and negative development paths being identified by Vaziri et al. (2021), their sample including both remote and non-remote employees. However, we were unable to find studies utilizing longitudinal data that explored what happens to remote employees' WLB during the pandemic. Therefore, this particular study focuses on the development of WLB in the context of intensive remote work.

Although the empirical evidence concerning remote employees' WLB is not very extensive, earlier literature has identified several factors that may promote or inhibit it. On one hand, remote work has been shown to involve many beneficial factors, such as greater flexibility and autonomy, time saved from commuting, an opportunity to invest more time in non-work activities, and reduced stress levels (Gajendran & Harrison, 2007; Lautsch et al., 2009; Maruyama et al., 2009). On the other hand, it has been argued that remote working increases the tendency for increased workload (Carillo et al., 2021; Wang et al., 2021), and a blurring of the work-family boundary leading to interferences between the work and home domains (Allen et al., 2015; Lapierre et al., 2016; Russell et al., 2009). Given the exceptional situation with the COVID-19 pandemic, the significance of how remote working affects WLB is accentuated (Shirmohammadi et al., 2022). Particularly, periods of intense working from home combined with partial closures of schools and daycare has also increased the importance of the non-working sphere on employees' WLB. However, we were unable to find any research that

explores the essential work and non-work related antecedents for WLB development in the context of remote work during the pandemic.

### **Job demands and resources and WLB in the remote work context**

#### *Quantitative workload and WLB*

Quantitative workload is an often-studied job demand, and refers to the amount of work expected from an employee in a prescribed time. A high workload influences employees' perceptions that they have too much to do, their work is piling up, and that they might have to overwork (Greenglass et al., 2003; Wännström et al., 2009). When the demands of work exceed employees' capabilities, they are likely to intrude into their non-work life (Skinner & Pocock, 2008). Work overload is an experience of being expected to accomplish more than one can deliver, and can impede an employee's ability to achieve a work-life balance (Boxall & Macky, 2014). Quantitative workload is a common work attribute related to work-life interference, and generally found to be a stronger predictor of work-life interference compared to other time related demands such as worked hours (McCrea et al., 2011; Skinner & Pocock, 2008). Excessive work pressure (a concept close to workload) has been found to be related to increased work-family conflict (Glavin & Schieman, 2012), and actual working hours, role overload (i.e. too much work to complete in the time available), and job-related time demands have been associated with a greater work-life imbalance (Boxall & Macky, 2014; Pirzadeh & Lingard, 2021).

There is also some evidence that remote employees have perceived that their workload has increased during the pandemic (Carillo et al., 2021; Wang et al., 2021). This is reasoned by the increase of virtual correspondence (online calls etc.) required in remote working, and also by the additional and urgent work caused by the COVID-19 emergency itself (Wang et al., 2021).

It has further been suggested that remote workers adopt a productive working style, and therefore take on more work (Carillo et al., 2021). Overall, quantitative workload seems to be an essential work demand in the context of remote work during pandemic, and therefore is likely to have effect on WLB development.

Although we did not find any earlier empirical studies exploring the link between workload and WLB in remote work contexts, in this study, we follow the JD-R theory assumption that high job demands lead to impaired well-being, and following earlier empirical evidence from contexts other than remote work, we hypothesize:

*H1: High quantitative workload decreases remote employees' WLB over time during the pandemic.*

### **Autonomy and WLB**

Autonomy has been found to be an important job resource for employees (Nahrgang et al., 2011; Schaufeli & Taris, 2014). Autonomy refers to what extent a person is able to structure when, where and how the job is performed, and also allows freedom, independence and discretion in making decisions related to tasks and how those tasks are completed (Hackman & Oldham, 1976; Morgeson & Humphrey, 2006; Spector, 1986).

In previous studies, job autonomy has been shown to have a positive influence on WLB (Haar & Brougham, 2022; Ronda et al., 2016; Walia, 2014). As autonomy increases the flexibility and possibility to modify the temporal and spatial elements of one's job, it has been seen as adding a flexibility to deal with family matters (Maruyama & Tietze, 2012) and improve possibilities to plan leisure time and allocate home duties (ten Brummelhuis & Bakker, 2012). Moreover, it has been reported that adding more flexibility in work tasks and schedules (i.e. autonomy) positively affects WLB (Kelliher & Anderson, 2008; Kelly et al., 2011).

Autonomy has been recognized as a positive element of remote work (e.g. Golden & Veiga, 2008; Harpaz, 2002; Nakrošienė et al., 2019). It has been found that high-intensive remote work is linked to higher autonomy related to one's job (see the meta-analysis of Gajendran & Harrison, 2007; Gajendran et al., 2015). However, the transition to intensive remote work due to the pandemic was sudden, and as employees needed to find novel ways of how to organize their work and collaborate with their team, it can be assumed that the level of their work autonomy was high.

Autonomy in remote work has been found to partially mediate the link between remote work and positive outcomes such as job satisfaction and performance (Gajendran & Harrison, 2007; Gajendran et al., 2015). We found three studies (Andrade & Lousa, 2021; Elfering et al., 2020; Wang et al., 2021) that took autonomy and work-family issues into account in the context of remote work during the COVID-19 pandemic. Especially, the studies have shown that high autonomy is linked to lower work-to-family conflict (Andrade & Lousa, 2021; Elfering et al., 2020), although Wang et al. (2021) reported that autonomy was not related to either work-to-family interference or family-to-work interference. However, as stated earlier, there is a stream of research to support the notion that remote working increases job autonomy (e.g. Gajendran & Harrison, 2007; Allen et al., 2015; Anderson & Kelliher, 2020; Lange & Kayser, 2022), and employees with low autonomy have been suffering from higher interference from work to home (Golden et al., 2006). Additionally, the field would benefit from further empirical evidence about autonomy and the positive side of work/non-work issues, for instance, WLB in the remote work context. As resources are especially important for positive well-being outcomes (following the motivation path in JD-R theory), we base our second hypothesis on the JD-R theory and earlier empirical evidence concerning the positive role of autonomy on WLB in work contexts other than remote work:

*H2: High job autonomy increases remote employees' WLB over time during the pandemic.*

Moreover, JD-R theory states that in addition to job resources' direct positive effects on employees' well-being, job resources have the potential to buffer the negative effects of job demands (Demerouti et al., 2001; Demerouti et al., 2002). In the remote work context, job autonomy has been found to buffer the negative association of commuting time on commitment and well-being (Emre & De Spiegeleare, 2021), but again, studies that explore the possible buffering effect of job autonomy on the relationship of quantitative job demands and WLB (and especially in the remote work context) were not found. However, we may assume that autonomy plays an especially important role in helping employees to cope with high workload and achieve WLB in the context of pandemic. Even if workload is high, autonomy allows a flexible sharing of time between different life spheres, for instance, with helping children at home school during the day and continue working later in the evening. Therefore, based on JD-R theory and the available empirical evidence of the buffering effect of autonomy on other kinds of demands on WLB, we hypothesize the following:

*H3: Job autonomy buffers the negative effect of quantitative workload on WLB over time during the pandemic.*

### **Non-work demands and resources**

Although earlier studies concerning work well-being (in particular, work engagement and burnout) have found that non-work demands and resources have a minor or non-significant influence (Bakker et al., 2005; Hakanen et al., 2008), their role is likely to be more important when focusing on phenomena involving both life spheres, for instance WLB, and in the specific situation of the pandemic, when different kinds of restrictions in society kept children at home more than normally. Non-work demands and resources may also be especially important when

the work place is one's home, and therefore in this study, having children at home has been considered as a non-work demand, and time saved from commuting as considered as a resource.

### **Number and age of children at home and WLB**

Homeworking employees may have the company of other members of the household while working, and their physical presence at home might trigger greater expectations from others in relation to the employee's participation in home-related responsibilities, regardless of the employee's commitment to working times (Allen et al., 2015).

At times during the pandemic peaks, a majority of children were homeschooled in many parts of the world (see e.g., ONS, 2020). Consequently, the impact of the non-work demand created by having children at home cannot be neglected. Parents with children at home have been found to be "time-starved" (Perrons, 2003), wanting more time for both work and family. It has further been found that especially small children create a feeling of time pressure, while older children demand less physical care, thereby creating less time constraints (Del Boca et al., 2020; Schieman et al., 2021; van der Lippe, 2007). However, a study examining the balance between work and non-work life spheres found that having children (regardless of their age) was found to lead to impaired WLB (van der Lippe et al., 2006). Also, a more recent study that compared changes in WLB during the COVID-19 emergency between employees with children and those without children, indicated that the presence of children under the age of 18 in the household is an important factor that negatively affects the work-life balance, possibly due to an additional burden of responsibilities related to the presence of children (Lonska et al., 2021). In addition, it has been found that work-life conflict has remained stable during the pandemic for the parents

of younger children, and is decreased if employees do not have children or have teenage children living at home (Schieman et al., 2021).

In Finland, the experiences of parents during the first wave of the pandemic (in the spring of 2020) were polarized, and although one third of parents perceived that meaningful family time increased, over half of the interviewees experienced higher stress and a weakened support network (Finnish Institute for Health and Welfare, 2022). In the study of Sulkanen, Alasuutari and Saranko (2021), although caring for young children at home during the spring of 2020 resulted in a reduced work-life balance, many respondents felt that this time increased their satisfaction towards family-life.

In the context of remote work, there is some evidence that remote work eases employees' possibilities to manage work and caring responsibilities, especially if they have children (Maruyama & Tietze, 2012). Furthermore, Golden et al. (2006) found that the size of the household (including every person living in the household, i.e. partner, children and other dependents) is related to the interface of work and family in the context of remote work. Here, we assume that the size of the household can be taken to indicate the number of employees' children living at home. In Golden et al.'s study, no direct link between the size of the household and work-family conflict or family-to-work conflict was found, but the size of the household moderated the link between the extent of remote work and family-to-work conflict (Golden et al., 2006). In particular, among those with large households, the more employees did remote work, the stronger their FWC, while for those with small households, the difference in the extent of remote work was not significantly related to FWC.

However, the extent of remote work has been very high during the pandemic, and due to closures of schools and day care, children may have been demanding attention even during work days. By applying the JD-R theory's proposition of the negative effect of demands on

well-being, earlier empirical evidence, and taking account of the specific context of the pandemic, we hypothesize:

*H4a: A higher number of children living at home decreases remote employees' WLB over time during the pandemic.*

*H4b: The younger the age of the youngest child living at home, the stronger the decrease in remote employees' WLB over time during the pandemic.*

### **Time saved from commuting and WLB**

By working from home, remote employees avoid commuting travel between work and home, and thus save time (Bai et al., 2021; Maruyama & Tietze, 2012). This may be beneficial especially for employees who have lengthy and time-consuming commutes, since the released time may be transformed to a contribution to the non-work life sphere without compromising work (Golden et al., 2006; Hilbrecht et al., 2013). Research findings regarding commute travel and its impact on the reconciliation of employees' work and personal and family life are indecisive. Long commutes have been found to reduce employees' energy, wellbeing and overall life quality (Emre & De Spiegeleare, 2019). It has also been found to increase employees' work-family conflict (Bai et al., 2021), especially if the freedom of choice of the time and location of working is low (Elfering et al., 2020). Yet, Maruyama et al. (2009) in their study of 1566 telecom employees found no support for a prediction of employees' WLB by way of commute travel. Nevertheless, they found that remote workers who spent a higher number of working hours at home (90-100 %) and thus avoided commuting, were still likely to report a more positive WLB compared to those who worked only 0-40 % of their working time from home. They further concluded that extensive remote work provided employees with the possibility to respond to the needs of work and home life, through flexibility and time gain.

The COVID-19 context discouraged people to commute to work during the pandemic by government recommendation, thus reducing their freedom to choose whether to work from the office or from home (Elfering et al., 2020), and limiting the theoretically proposed (Ashfort et al., 2000) benefit of using



commuting time as a possibility for boundary management between work and non-work roles. But despite these possible downsides of reduced commuting, the new situation has given people the possibility to experience a no-commute lifestyle and its benefits (Cornell et al., 2022) and to value the time saved as a new resource. Thereby, we study time commuting as a resource in the home sphere.

Following the core assumption of JD-R theory about the positive role of resources on well-being, and in alignment with earlier empirical findings, we therefore hypothesize:

*H5: Time saved from commuting increases remote employees' WLB over time during the pandemic.*

As a further consideration, Tremblay (2002) found that for employees with children, remote work can be a preferred option as it allows them to spend more time at home with the family in the mornings and evenings, with a better balance between work and family as an outcome. Reduced commuting saves time (Bai et al., 2021; Maruyama & Tietze, 2012) that can be allocated to cope with non-work demands, for instance, childcare. It is possible that this was especially important in the context of pandemic related restrictions and the increased need to take care of children at home. Aligned with this empirical finding and with the help of JD-R theory suggesting that resources may buffer the negative effects of demands, we pose our last two hypotheses:

*H6a: Time saved from commuting buffers the negative effects of the number of children living at home on remote employees' WLB over time during the pandemic.*

*H6b: Time saved from commuting buffers the negative effects of the age of the youngest child living at home on remote employees' WLB over time during the pandemic.*

## **Methods**

The data used for this study (N=1218, T1; N=776, T2) was collected during the COVID-19 pandemic in May-June 2020 (T1) and December 2020 (T2), from employees in a large multinational corporation in Finland that operates in the field of industrial technology development and manufacturing. As a consequence, the study had an eight-month time lag. The data was collected via an online questionnaire sent to the employees. The questionnaire was originally sent to 2483 employees in May-June 2020, and 1218 (49% response rate) returned the questionnaire. The same questionnaire was sent again in December 2020 to those who had responded to the previous questionnaire, and 776 (64 % response rate) returned the questionnaire.

The employees of the corporation had very little previous experience with remote work. Before the pandemic, most (80%) of the employees used less than 10% of their working time to remote work. Demographically, the sample consisted mostly of men (64%). At T1, the mean age of respondents was 43.9 years (SD = 10.3; range = 20–68), and most participants were in a relationship (70%). Most employees were highly skilled (senior salaried employees).

WLB was measured with four items and had a good reliability at both time points (T1  $\alpha = .89$ ; T2  $\alpha = .92$ ). The scale used was developed and validated by Brough et al. (2014), and participants responded on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). An example item is: “Overall, I believe that my work and non-work life is balanced”.

Quantitative workload was measured with four items and had a good reliability at both time points (T1  $\alpha = .83$ ; T2  $\alpha = .83$ ). The scale was based on the QPS-Nordic questionnaire (Wännström et al., 2009), and participants responded on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). An example item is: “Do you have too much to do?”

Job autonomy was measured with six items and had a good reliability at both time points (T1  $\alpha = .82$ ; T2  $\alpha = .83$ ). The Job autonomy scale was based on the Nova-Weba questionnaire (Houtman et al., 1994) and has also been used by Runhaar et al. (2013). An example item is: “I am free to decide how I do my work”. Participants responded on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Time saved from commuting was measured with a single question: “How long does your one-way commute take in minutes?” The mean value of the time saved from commuting was approximately 28 minutes with a standard deviation of 16. The number of children living at home was measured ranging from 0 (no children) to 10 children living at home. Over half of the respondents (53 %) did not have children living at home, 17 % had one child, 20 % had two children, and 10 % had more than two children living at home. The mean for the number of children was approximately 0.83 with a standard deviation of 1.08. The age of the youngest child living at home ranged from 0 (no children) to 18 (children aged one year and under were coded as 1). The mean age of the youngest child was approximately 3.63 with a standard deviation of 5.27.

Quantitative workload, job autonomy and WLB were used as sum scores in descriptive and attrition analysis. Attrition analysis was conducted with logistic regression. After the descriptive analysis and attrition analysis were conducted, structural equation modeling (SEM) was used to investigate the temporal associations between WLB, and work and non-work demands and resources in a remote work context with a cross-lagged panel model. A robust maximum likelihood estimator (MLR) was used due to slightly non-normal distributions, and missing data was handled using a full information maximum likelihood (FIML) method. Quantitative workload, job autonomy and WLB were modeled in the SEM as latent variables with multiple observed indicators. First, tests of longitudinal measurement invariance were

conducted to confirm the structural stability of the measured variables in time. Second, the means of the latent variables were compared between time points by constraining the means at T1 to 0 and allowing the means at T2 to be freely estimated. Third, structural paths and covariates were added to the model. Finally, interactions between latent and observed variables were investigated using the LMS-method (Klein & Moosbrugger, 2000). Standard cutoff values (e.g. Hu & Bentler, 1999) were used to determine an adequately fitting model (non-significant  $\chi^2$ ; RMSEA < 0.06; CFI/ TLI  $\geq$  0.95/0.90; SRMR < 0.08). For longitudinal measurement invariance, the cutoff points suggested by Chen (2007) were used ( $\Delta$ CFI  $\geq$  -.01;  $\Delta$ RMSEA  $\geq$  .015;  $\Delta$ SRMR  $\geq$  .03). We investigate the overall development of WLB with latent factor mean comparisons, and the predictors of WLB over time with the cross-lagged panel model.

In the cross-lagged panel model, we adjust for WLB at T1 to adjust for any previous differences in WLB outside the study period. We included control variables that typically have been found to relate to employees' work and non-work issues, such as WLB (Haar & Brougham, 2020; Haar et al., 2019; Park et al., 2022; Thrasher et al., 2022). Therefore, our model controls gender (0=male, 1=female), age (in years), and relationship status (0=single, 1=in relationship). These variables could influence the direct effects of job autonomy, quantitative workload, age of the youngest child, and number of children on WLB at T2.

In the analysis, those who were not remote working in T1 (n = 72) or T2 (n = 39) were excluded and the sample size used for analysis was 1146 at T1 and 737 at T2. Gender, age and relationship status were adjusted in the final cross-lagged panel model. Descriptive and attrition analysis were carried out using IBM SPSS version 26, and the cross-lagged panel model was tested with Mplus version 8.6.

## Results

The means, standard deviations and correlations between variables are shown in Table 1. A descriptive analysis of the means reveals WLB to have been quite high among the employees as the means were 4.04 at T1 and 3.77 at T2, on a scale of 1 to 5. Job autonomy was also high, and quantitative demands were moderate among the employees. Correlations between the variables indicated that the hypothesized associations of quantitative workload, autonomy and time saved from commuting were all significantly related to WLB. Attrition analysis did not reveal any significant predictors of dropout in the demographic or other variables included in the study.

The CFA model with latent variables had acceptable standardized factor loadings, indicating valid latent measures. Standardized factor loadings of WLB at T1 had a range of .70 to .90, and WLB at T2 had a range of .75 to .92. Factor loadings of job autonomy at T1 had a range of .56 to .73, and .60 to .78 at T2. Quantitative workload at T1 had a range of .68 to .84, and .65 to .84 at T2. The model chi-square test ( $\chi^2 = 873.603$ ;  $df = 321$ ;  $p < 0.001$ ) indicated a model misfit, but the chi-square test is sensitive to sample size. Thus, the model fit for the measurement model was deemed to be adequate as indicated by RMSEA (0.039), CFI (0.953), TLI (0.945) and SRMR (0.048) values.

The longitudinal measurement invariance of the model was confirmed as the tests of configural, metric, scalar and strict measurement invariance did not show any significant reduction in model fit (see Table 2). After strict longitudinal measurement invariance was confirmed, the means of latent variables were compared between time points by constraining the means at T1 to 0 and allowing the means at T2 to be freely estimated. All latent mean differences were significant between WLB, job autonomy and quantitative workload across time. WLB (-.32,  $p < .001$ ) and job autonomy (-.13,  $p < .001$ ) had decreased during the eight-month period and quantitative workload (.33,  $p < .001$ ) had increased.

After the measurement model was tested, structural paths and covariates were added to the model. The model chi-square test ( $\chi^2 = 1174.167$ ;  $df = 489$ ;  $p < 0.001$ ) again indicated a model misfit, but the model had an adequate approximate fit with the data indicated by RMSEA (0.035), CFI (0.945), TLI (0.939) and SRMR (0.046) values. The cross-lagged panel model showed that the temporal directions of the studied variables were only one-directional, as the cross-lagged effects from WLB at T1 to quantitative workload and job autonomy at T2 were non-significant,

**Table 1.** Means, standard deviations, and bivariate correlations of the study variables

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. WLB T1	4.02	.87	1								
2. WLB T2	3.77	.97	.571**	1							
3. Autonomy T1	3.83	.72	.320**	.218**	1						
4. Autonomy T2	3.75	.73	.263**	.326**	.567**	1					
5. Quantitative workload T1	2.70	.98	-.499**	-.385**	-.337**	-.290**	1				
6. Quantitative workload T2	2.99	.98	-.355**	-.520**	-.245**	-.375**	.620**	1			
7. Time saved from commuting	27.7	15.7	.065*	.105**	.056	.001	-0.03	-.062	1		
8. Number of children	0.83	1.08	-.052	.007	-.028	.054	.066*	.025	.061*	1	
9. Age of the youngest child	3.63	5.27	-.011	.015	-.044	-.010	.077*	.024	.025	0.579**	1

Note: T1 (N=1146), T2 (N=737), \* =  $p < .05$ , \*\* =  $p < .01$

**Table 2.** Fit statistics for tests of longitudinal measurement invariance

Model	$\chi^2$	df	p	CFI	TLI	SRMR	RMSEA (90 % CI)	BIC	$\Delta\chi^2$ (p)	$\Delta$ CFI	$\Delta$ TLI	$\Delta$ SRMR	$\Delta$ RMSEA	$\Delta$ BIC
Configural	873.603	321	< 0.001	0.953	0.945	0.048	0.039 (0.036, 0.042)	64747.037						
Metric	887.011	332	< 0.001	0.953	0.946	0.050	0.038 (0.035, 0.041)	64683.422	12.868 (0.302)	0	0.001	0.002	-0.001	-63.615
Scalar	906.924	343	< 0.001	0.952	0.947	0.050	0.038 (0.035, 0.041)	64624.972	18.974 (0.062)	-0.001	0.001	0	0	-58.450
Strict	914.654	357	< 0.001	0.953	0.950	0.052	0.037 (0.034, 0.040)	64549.266	15.217 (0.364)	0.001	0.003	0.002	-0.001	-75.706

and the cross-lagged effect from quantitative workload at T1 to WLB at T2 was significant (see Figure 1). The autoregressive paths between all three studied measures at T1 and their counterparts at T2 were significant.

--TABLE 1 AROUND HERE--

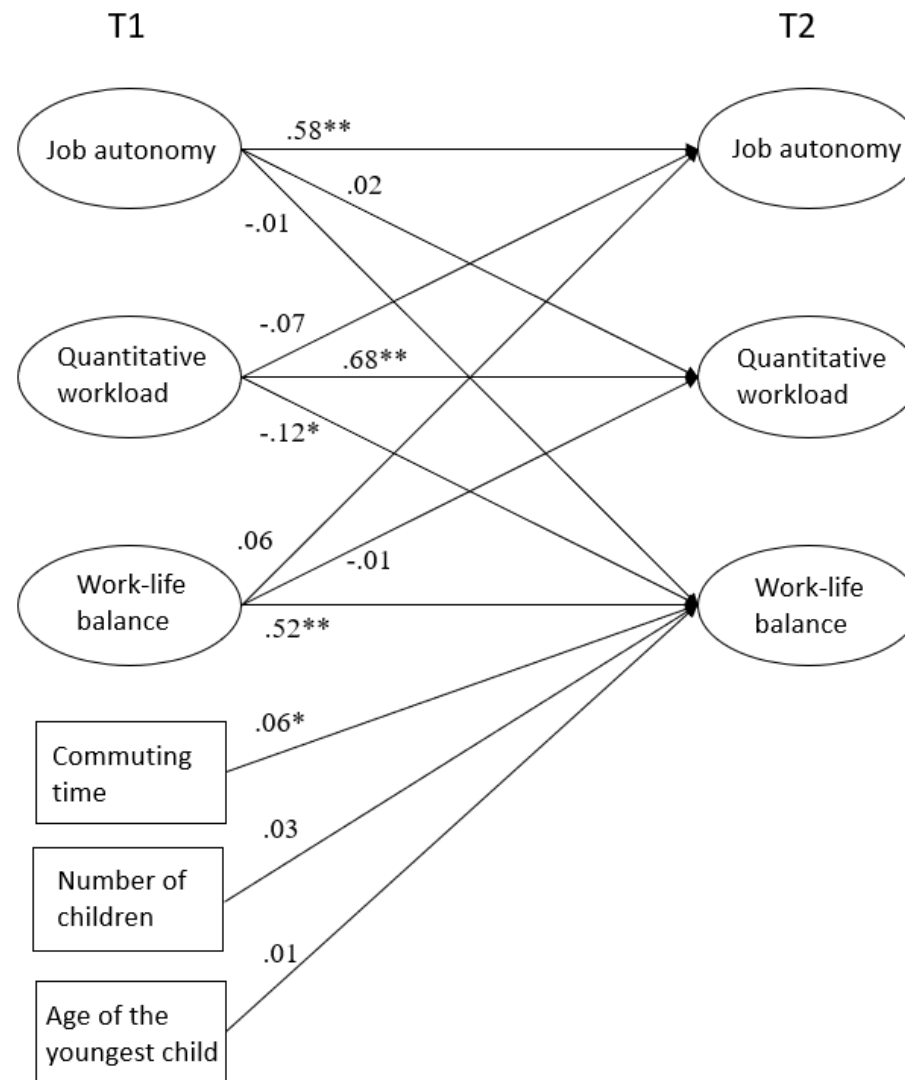
---TABLE 2 AROUND HERE---

The results from the cross-lagged panel model (see Figure 1) indicated that according to our hypothesis (H1) based on the JD-R-model, quantitative job demands had a negative cross-lagged effect ( $\beta = -.12$ ;  $p = .01$ ) on WLB while controlling for their autoregressive effects and demographic variables. This indicated that increasing quantitative workload reduced WLB and therefore H1 was supported. Surprisingly, job autonomy did not have a significant cross-lagged effect ( $\beta = -.01$ ;  $p = .92$ ) on WLB, and therefore H2 was not supported. The hypothesized buffering effect of job autonomy on the negative effect of quantitative demands on WLB (H3) turned out to be non-significant ( $\beta = .04$ ;  $p = .24$ ). Table of all associations in the final cross-lagged panel model can be found in the Appendix (Table 3).

Time saved from commuting was positively related ( $\beta = .06$ ;  $p = .04$ ) to WLB, but neither the number of children ( $\beta = .03$ ;  $p = .36$ ) nor the age of the youngest child ( $\beta = .01$ ;  $p = .83$ ) were related to WLB. More time saved from commuting indicated a better WLB at a later time. Therefore, neither H4a nor H4b were supported, and H5 was supported by the data. Both interaction effects between the time saved from commuting and the number of children (H6a;  $\beta = .02$ ;  $p = .49$ ), and between the time saved from commuting and the age of the youngest child (H6b;  $\beta = .03$ ;  $p = .28$ ) were non-significant, and thus neither H6a nor H6b were supported by the data.

--FIG 1 HERE--





**Figure 1.** Full cross-lagged panel model with standardized regression coefficients. Note: \* =  $p < .05$ , \*\* =  $p < .01$ . For simplification, indicators, measurement residuals, disturbances, and correlations between variables are not shown in the figure.

## **Discussion and conclusion**

The aim of this research was to investigate the temporal associations of work and non-work antecedents for the work-life balance (WLB) development of remote employees during the COVID-19 pandemic. This research contributes to the literature of WLB in a situation of intensive remote work caused by the global pandemic. During the pandemic, remote work was strongly recommended by authorities (ILO, 2020; WHO, 2021; Parliament of Finland, 2021) – thus, remote work was involuntary, a main mode of working, and home-based. Earlier research has mainly studied remote work before the pandemic, and treated it typically as a benefit that an employer provided to their employees, or as an opportunity for a company to make cost savings. Unfortunately, we do not yet know how long different kinds of restrictions around the globe will continue due to the pandemic, or if some other global crises will arise in the future which may also lead to involuntary remote work. But it has become clear that working life won't be the same after the pandemic, and it is likely that remote work will be much more common in the future than it was before the pandemic.

Our results revealed that the WLB of remote employees decreased during the pandemic. Earlier literature has found that remote working increases the strain of work-to-family conflict if the remote work was non-voluntary (Lapierre et al., 2016). However, there are also studies that report the positive effects of remote working on work-life balance (e.g. Gajendran & Harrison, 2007; Lautsch et al., 2009; Maruyama et al., 2009), and those studies include a variety of remote working arrangements (including part-time and voluntary remote working), and could reflect a preferred choice of the employees and a better matching to their lifestyle. Our results seem to be aligned with these findings to some extent, and WLB decreased the longer that involuntary home-based remote work lasted. On the other hand, the WLB of remote employees seems to be at a relatively high level (with a mean at the first measurement point of 4.04 and 3.77 at the second, with a maximum value of 5), thus indicating that finding a balance between work and

non-work in the context of involuntary remote work is very likely. It is also possible that the pandemic actually provided a long-awaited opportunity of remote work, which may have previously been denied by an employer or 'presence cultures' in companies, leading to high perceptions of WLB, especially at the beginning. However, studying WLB in the context of the global pandemic may have affected our findings, and for instance, constant restrictions have led to a lack of hobbies, social gatherings, and other important non-work activities in remote employees' lives. With the situation continuing over many months and without any knowledge of how long it might last, may have decreased people's experiences of how satisfied they were with the possibilities to combine their work and non-work life spheres. Therefore, more research is needed regarding the development of WLB during and after the pandemic, and how future work models that combine on-site working and remote work are related to it. In addition, a conceptualization of remote work needs to be developed in order to recognize, for instance, different types of remote work, and taking into account factors such as voluntary vs. non-voluntary remote work, the division of working time between remote and on-site, home-office or some other place, etc.

Furthermore, we found that job demand (quantitative workload) and non-work resource (time saved from commuting) predicted remote employees' WLB, whereas job resource (autonomy) and non-work demands (number of children and age of the youngest child living at home) did not. Thus, it seems that non-work related resources and demands should also be taken into account in addition to those related to work, if the focus is to be on phenomena that link to both life spheres of employees, such as WLB. The findings of our study align with earlier findings arrived at during the pandemic (Carillo et al., 2021; Wang et al., 2021), and show that quantitative workload (as an indicator of job demand) grew between the time points, and it is possible that it is because of the challenging work setting posed by remote working (Eddleston & Mulki, 2017) and a decreased access to support (Mann & Holdsworth, 2003; Sardeshmukh

et al., 2012), all of which could add to the effort required from remote working employees. However, as we do not have a possibility to compare the development of workload between employees working remotely and them who worked on offices, we are not able to confirm if remote working was the reason to increase of job demands. Moreover, we found that increasing workload had a negative impact on WLB over time. It seems that the remote working situation has been perceived as burdensome, negatively affecting employees' experiences of their overall work-life balance. Earlier studies have found that work pressure and worked hours (concepts close to quantitative workload) are related to lower work-life balance and higher work-family conflict (Boxall & Macky, 2014; Glavin & Schieman, 2012), and our results show that it is also the case in a remote work setting in the context of the pandemic. A possible explanation could be drawn from the blurring of boundaries between work and home domains (Allen et al., 2015; Lapierre et al., 2016; Russell et al., 2009), allowing a greater intrusion of work into the non-work sphere (Barber et al., 2019; Suh & Lee, 2017) which may happen easily when demanding work is carried out from home.

The time saved from commute travel that would normally take place between work and home, was in practice almost fully negated in the COVID-19 context. Specifically, it was considered as an indicator of a non-work resource because commuting to work is usually done in the employees' own time. Earlier research has reported that longer commuting time increases the conflict between work and family (Elfering et al., 2020), and in our study, the length of time saved from commuting was found to be a significant factor in the increasing the WLB of remotely working employees. Earlier research has shown that saved commuting time can be spent on family and non-work related activities (Bai et al., 2021; Maruyama et al., 2009), which may also be the case in our study. In addition, it is possible that once employees did not need to commute, it created a less stressful atmosphere for the start and end the working day, avoiding traffic jams or crowded public transportation. However, it is important to note that

commute travel itself, and the physical transfer between work and home, has not been seen as entirely harmful in previous literature. Looking at the commuting through a lens of boundary theory, the commuting time could be seen as useful preparation time for workers to psychologically relax and shift into a different role (e.g., from employee to parent/partner or vice versa) (Ashfort et al., 2000), although we were not able to find empirical studies supporting that suggestion. The loss of this routine in remote working during the pandemic, even with the limited possibilities of the freedom to choose whether to work from home or in an office (which is a situation closely related to temporospatial autonomy that has found to decrease the harmful effect of long commutes on WFC: Elfering et al., 2020) did not seem to lead to difficulties for employees in relation to their work-life balance. Given these considerations, we suggest further research to study the different mechanisms of why and how time saved from commuting promotes remote employees' WLB, how that time is actually spent, and what kinds of benefits employees link to it.

Our study revealed that job autonomy does not have a significant cross-lagged effect on WLB, nor did it buffer the negative effect of quantitative job demands on WLB. This finding did not support our hypothesis in which we expected that autonomy would promote WLB in remote work, based on JD-R theory and earlier findings from other work contexts (Haar & Brougham, 2022; Ronda et al., 2016; Walia, 2014) than remote work. However, our finding was aligned with one study conducted during the COVID-19 pandemic (Wang et al., 2021). In that study, autonomy was not related to either work-to-family interference or family-to-work interference as a negative indicator of work and non-work, and based on our study, it does not have an effect on WLB as a positive indicator. However, two studies have shown that high autonomy and low work-to-family conflict are related, both before (Elfering et al., 2020) and also in the context of the pandemic (Andrade & Lousa, 2021). This may mean that although recognized as a typical feature of remote work, autonomy does not always function in a similar way as seen in other

work contexts. In fact, it may even be that in order to cope with the high autonomy present in a remote work context, people need to have some additional personal skills (e.g. self-leadership) or traits (e.g. self-discipline) that help them to organize their work in a way that enhances their WLB. Future studies should therefore focus on the role that these kinds of personal resources (which are also acknowledged in JD-R theory: Schaufeli & Taris, 2014) may play in the relationship between job autonomy and different outcomes, for instance WLB. In addition, while this study had an eight-month time lag, more research is needed about the temporal relationships and development of quantitative workload, job autonomy and WLB over longer time periods. Comparison between remote employees and employees working in offices is also needed, especially when hybrid work models are taking place after pandemic restrictions are eased or not existing. In addition, studying only one sector, we acknowledge that some of the changes we have identified may be caused by changes happening in that particular company or sector and more research is needed in other sectors and environments.

As a final area for reflection, our results showed that having children at home was not related to WLB in our study period, despite it having been hypothesized based on earlier research (van der Lippe et al., 2006). Surprisingly, the COVID-19 pandemic meant extraordinary life disruptions such as temporary closures of schools and daycare services, and thus added pressure on parents in way of juggling between home and job demands. At the time of the first data collection, schools and daycare facilities were just opening after being closed for two months in Finland, and this may have had a positive effect on remote employees' thoughts about their WLB. It is therefore possible that their experiences might have been different if the data would have been collected e.g. two weeks after the restrictions started and families had not yet learned to cope with the situation. Anyhow, it seemed not to have affected their experiences of work-life balance during pandemic. In fact, being present at home could have contributed to a better reconciliation of home and work duties (Maruyama & Tietze, 2012), and improved the proximity to family simply by being there and

being able to spend additional time in the non-work life sphere. It is also possible that the rhythm of life slowed down when parents did not need to take children to their hobbies in the evenings, or they did not need to worry about young children staying at home alone after short school days that are typical in Finland. In this study, we only asked the age and amount of children under 17 years of age living at home, and more detailed information (e.g. if children were at home during the working day) could have led to different results. As we did not find the relationship between time saved from commuting and the number of children living at home to be statistically significant for WLB, we may conclude that time saved from commuting seems to be equally important for employees who had any number of children living in the same household, as it was for those who had none. However, it is likely that the way that the saved time is spent is different for these groups, and this provides an area of examination for future studies.

In addition, existing research has shown that during the pandemic, women (especially mothers) have used more time on childcare and household chores than men (Craig et al., 2021; Giurge et al., 2021), and are more eager to return to work in offices after the pandemic than men (Caligiuri & De Cieri, 2021). Our model was adjusted for gender, and gender was not related to WLB at T1 or T2. We also performed additional multigroup analysis (see Appendix for Table 4) to see if the model has different direct effects on WLB at T2 based on gender, and no relationships were found. However, the associations between the age of the youngest child and the number of children and WLB at T1 were different based on gender, which means that WLB at T1 controls their effect on WLB at T2, and therefore, there are no significantly different direct effects on WLB at T2 based on gender. There could be different total effects based on gender through an indirect path from the age of child or number of children to WLB at T2 through WLB at T1, but we were interested in the direct effects observed during the measurement period between T1 and T2 as that period was during the pandemic. Based on the additional multigroup

analysis, WLB at T1 was more challenging for women the more children they had, or the younger the youngest child was. For men, children did not make a difference for their WLB at T1. This finding indicates that WLB has been more challenging for mothers compared to fathers already when our first data had been collected, and the continuance of the pandemic did not change the situation in any direction. We studied remote workers' WLB in the Finnish context, a country ranking high in gender equity, which reflects a situation where family responsibilities are typically shared between parents, and men are likely to participate in daily childcare. Despite of that, WLB was more challenging for mothers than father as a starting point (T1). However, the good news is that the development of WLB was not related on gender nor parental status and we can assume that men and women both carried the possible added childcare responsibility related to the COVID-19 precautions in schools and daycare services. However, future studies should utilize longitudinal data with several data points, optimally with at least the first of them collected *before* the pandemic, in order to explore this phenomenon in more depth. Also, identifying possible confounders and adjusting for them in the analysis would be important to address in future studies.

In studying the topic through a gender specific lens, looking at dual-earner couples in which both partners have a possibility for remote work would be an interesting perspective. For example, research focusing on their experiences of how work and non-work demands and resources are linked to their strategies to combine work and family life with their partner (Shockley et al., 2021), and through that to their WLB, would provide novel knowledge about families in modern working life. However, it is important to acknowledge that gender is a nonbinary spectrum, and still too often, categorizations based on a demographic variable of men and women is applied (Cameron & Stinson, 2019). Thus, the diversity of employees as well as families should be taken into account in future research concerning remote work.



As practical implications drawn from our study findings, we encourage employers to follow development for employee WLB as a measure of their wellbeing, especially if their work is conducted fully or partly at home. We also recommend the introduction of organizational policies and practices to protect the important time resource gained from reduced commuting (e.g. by not letting worktime flow over into the time previously used for commuting), and for supervisors to maintain regular contact with employees to monitor their general workload.

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## APPENDIX

**Table 3.** All structural paths and correlations between the variables of interest in the final cross-lagged panel model

Association	$\beta$	R
WLB T1 $\rightarrow$ WLB T2	.52**	-
WLB T1 $\rightarrow$ Autonomy T2	.06	-
WLB T1 $\rightarrow$ Quantitative workload T2	-.01	-
WLB T1 $\leftrightarrow$ Quantitative workload T1	-	-.54**
WLB T1 $\leftrightarrow$ Autonomy T1	-	.36**
Autonomy T1 $\leftrightarrow$ Quantitative workload T1	-	-.39**
Autonomy T1 $\rightarrow$ Autonomy T2	.58**	-
Autonomy T1 $\rightarrow$ WLB T2	-.01	-
Autonomy T1 $\rightarrow$ Quantitative workload T2	.02	-
Quantitative workload T1 $\rightarrow$ Quantitative workload T2	.68**	-
Quantitative workload T1 $\rightarrow$ WLB T2	-.12*	-
Quantitative workload T1 $\rightarrow$ Autonomy T2	-.07	-
WLB T2 $\leftrightarrow$ Quantitative workload T2	-	-.46**
WLB T2 $\leftrightarrow$ Autonomy T2	-	.27**
Autonomy T2 $\leftrightarrow$ Quantitative workload T2	-	-.40**
Time saved from commuting $\rightarrow$ WLB T1	.07*	-
Time saved from commuting $\rightarrow$ WLB T2	.06*	-
Time saved from commuting $\rightarrow$ Quantitative workload T1	-.05	-
Time saved from commuting $\rightarrow$ Quantitative workload T2	-.04	-
Time saved from commuting $\rightarrow$ Autonomy T1	.06*	-
Time saved from commuting $\rightarrow$ Autonomy T2	-.03	-
Time saved from commuting $\leftrightarrow$ Number of children	-	.06
Time saved from commuting $\leftrightarrow$ Age of the youngest child	-	.02
Number of children $\rightarrow$ WLB T1	-.06	-
Number of children $\rightarrow$ WLB T2	.03	-
Number of children $\rightarrow$ Quantitative workload T1	.06	-
Number of children $\rightarrow$ Quantitative workload T2	-.01	-
Number of children $\rightarrow$ Autonomy T1	-.01	-
Number of children $\rightarrow$ Autonomy T2	.11**	-
Number of children $\leftrightarrow$ Age of the youngest child	-	.58**
Age of the youngest child $\rightarrow$ WLB T1	.03	-
Age of the youngest child $\rightarrow$ WLB T2	.01	-
Age of the youngest child $\rightarrow$ Quantitative workload T1	.03	-
Age of the youngest child $\rightarrow$ Quantitative workload T2	-.03	-
Age of the youngest child $\rightarrow$ Autonomy T1	-.04	-
Age of the youngest child $\rightarrow$ Autonomy T2	-.03	-

Note. \* =  $p < .05$ , \*\* =  $p < .01$ . Correlations (R) are represented as ( $\leftrightarrow$ ) and regressions ( $\beta$ ) as ( $\rightarrow$ ).

**Table 4** Post-hoc multigroup analysis of all structural paths and correlations between the variables of interest in the final cross-lagged panel model.

Association	$\beta_M$	$R_M$	$\beta_W$	$R_W$
WLB T1 → WLB T2	.50**	-	.59**	-
WLB T1 → Autonomy T2	.01	-	.25**	-
WLB T1 → Quantitative workload T2	.01	-	-.08	-
WLB T1 ↔ Quantitative workload T1	-	-.54**	-	-.50**
WLB T1 ↔ Autonomy T1	-	.36**	-	.33**
Autonomy T1 ↔ Quantitative workload T1	-	-.39**	-	-.39**
Autonomy T1 → Autonomy T2	.59**	-	.57**	-
Autonomy T1 → WLB T2	-.02	-	.02	-
Autonomy T1 → Quantitative workload T2	.05	-	-.01	-
Quantitative workload T1 → Quantitative workload T2	.73**	-	.59**	-
Quantitative workload T1 → WLB T2	-.16**	-	-.03	-
Quantitative workload T1 → Autonomy T2	-.10	-	.03	-
WLB T2 ↔ Quantitative workload T2	-	-.44**	-	-.49**
WLB T2 ↔ Autonomy T2	-	.25**	-	.34**
Autonomy T2 ↔ Quantitative workload T2	-	-.38**	-	-.47**
Time saved from commuting → WLB T1	.08*	-	.04	-
Time saved from commuting → WLB T2	.10**	-	-.09	-
Time saved from commuting → Quantitative workload T1	-.04	-	-.07	-
Time saved from commuting → Quantitative workload T2	-.04	-	-.05	-
Time saved from commuting → Autonomy T1	.08*	-	-.01	-
Time saved from commuting → Autonomy T2	-.03	-	-.07	-
Time saved from commuting ↔ Number of children	-	.06	-	.07
Time saved from commuting ↔ Age of the youngest child	-	.01	-	.10
Number of children → WLB T1	.01	-	-.26**	-
Number of children → WLB T2	.02	-	.05	-
Number of children → Quantitative workload T1	.02	-	.23**	-
Number of children → Quantitative workload T2	.01	-	-.01	-
Number of children → Autonomy T1	.06	-	-.26**	-
Number of children → Autonomy T2	.09*	-	.16	-
Number of children ↔ Age of the youngest child	-	.56**	-	.68**
Age of the youngest child → WLB T1	-.01	-	.23**	-
Age of the youngest child → WLB T2	-.03	-	.06	-
Age of the youngest child → Quantitative workload T1	.02	-	-.06	-
Age of the youngest child → Quantitative workload T2	.01	-	-.11	-
Age of the youngest child → Autonomy T1	-.07	-	.15*	-
Age of the youngest child → Autonomy T2	-.04	-	.01	-

Note: \* =  $p < .05$ , \*\* =  $p < .01$ . Correlations (R) are represented as ( $\leftrightarrow$ ) and regressions ( $\beta$ ) as ( $\rightarrow$ ). Subscript M represents men ( $n = 845$ ) and W represents women ( $n = 262$ ).