The Impact of Work and Family Conflicts on Productivity and Well-Being during Remote Work

David Goullet, Nathan Sciulli, Tristan Snell

School of Psychology, Deakin University, Geelong, VIC, Australia
david.goullet@nousgroup.com

Abstract

In 2020, most of the Australian workforce engaged in remote work. Border conflicts (work interfering with family conflict and family interfering with work conflict) are negatively associated with well-being and productivity in traditional work settings. The current study aimed to explore the relationship between border conflict, wellbeing, and productivity when working remotely. Method. Participants were 340 adults aged 18 - 62 years (Mean = 33.98, SD = 8.80). To be eligible, individuals needed to be over the age of 18, living in Australia and working from home for at least one hour per week. Respondents reported on their levels of border conflict (Work-Family Conflict scale), wellbeing (Short Warwick-Edinburgh Mental Well-being Scale), productivity (Individual Work Performance Questionnaire) and demographic variables. Hierarchical linear regression analysis assessed associations between border conflict, productivity, and wellbeing. Results. Work interfering with family conflict and family interfering with work conflict demonstrated significant, negative associations with wellbeing Family interfering with work conflict demonstrated a significant, negative association with productivity, but work interfering with family conflict did not. Conclusion. Results demonstrate the importance of considering work and personal in unison when attempting to understanding employee's productivity and wellbeing, especially when working remotely.

Keywords: *Working From Home, Remote Work, Border Theory, Work/Life Conflict, Wellbeing, Productivity*

1.   Introduction

The global working landscape has drastically been changed by COVID-19, the novel coronavirus. With approximately 66% of Australians engaging in the workforce (Australian Bureau of Statistics, 2020), this changing landscape of work is having profound ramifications on the work and family lives of many individuals. Centralised locations for work have typically been utilized in Australia due to suggested high levels of sociability, interconnectedness and efficiency of teamwork for employees (Narayanan, Menon, Plaisent, & Bernard, 2017). Prior to the onset of COVID-19, approximate one-third of Australian workers engaged in remote work or flexible work agreements. The majority of these employees working from home engaged in part-time or casual work, with few engaging in full-time work from home (Australian Bureau of Statistics, 2015). The recent pandemic posed an unprecedented threat to the health and wellbeing of workers in central locations, due to the highly contagious nature and potential for spreading of the virus within environments such as offices (Savić, 2020). As a result, the Australian Government mandated businesses to have employees working from home if they could work from home (Safe Work Australia, 2020). Estimates indicate that up to 88% of the Australian workforce who were able to work from home transitioned from working at a central location to remote work (Mitchell, 2020). This transition was rapid, often compulsory for employees, and was typically conducted without extensive research into the implications of remote work (Savić, 2020). As such, research is needed to understand the impact that compulsory remote work has on employee wellbeing and performance.

A lack of established remote work infrastructure (e.g. technologies) and exposure to remote work have been identified as primary reasons why many organisations did not engage in remote work prior to the pandemic (Savić, 2020). As several infrastructure and exposure challenges have been overcome due to mandated requirements, it is likely many employers will continue to engage their employees in flexible and remote work agreements moving forward (Kumar, P., Kumar, N., Aggarwal & Yeap, 2021; Savić, 2020). Research suggests a growing trend of flexible work arrangements, with large scale firms committing to new employee experience policies and smaller organisations expected to follow (Kotey & Koomson, 2021). While many organisations have indicated that they will transition to new ways of working, it is unclear how these will impact employees (Izdebski & Mazur, 2021; Kumar et al., 2021). Research may help inform organisations how to maximise employee performance and wellbeing during the ongoing COVID-19 pandemic, as well as any compulsory instances of work from home in the future.

Productivity and wellbeing are interconnected concepts, with low levels of one typically related to lower levels of the other. Often, organisations measure the value of their employees in terms of productivity. Productivity can be defined as the effectiveness of work and can be measured by comparing the rate of output per unit of input (Nielsen et al., 2017). Similarly, many organisations are concerned with employee wellbeing due to the well-established relationship between wellbeing at work, quality of work and broader quality of life (Redekopp & Huston, 2019; Sun, Harris & Vazire, 2019). Wellbeing can be defined as workers' health, happiness and prosperity (Sun et al., 2019). Overall, it is paramount that productivity and wellbeing are studied to gain insights as to how to maximise both organisational effectiveness and individual prosperity.

Research, public opinion, and the media present conflicting messages surrounding the impact that working from home has on both productivity and wellbeing (Savić, 2020). Frequently cited studies on the topic suggest that working from home results in improved productivity, increased time spent with family and increased health outcomes (Eddleston & Mulki, 2017; Narayanan et al., 2017). Additionally, messages of isolation, fatigue and technological faults highlight challenges associated with working from home (Eddleston & Mulki, 2017; Narayanan et al., 2017). However, much of the associated research is based on data collected prior to COVID-19, which typically includes individuals volunteering, rather than mandated, to work from home (Kaduk, Genadek, Kelly & Moen, 2019; Savić, 2020). Additionally, much of the research has focused on individuals engaging in flexible work agreements where they typically work for a few days from home and work at a centralised location for other days in the week (Savić, 2020). As such, the research may underestimate the effects of lack of sociability, levels of fatigue and technical challenges when compared to full time work from home (Kaduk et al., 2019).COVID-19 may have increased the impact that demographic factors have on individual's subjective experience of productivity and wellbeing at work. Gender differences are consistently found across the literature, with females often being found to have lower job-related wellbeing (Batz-Barbarich et al., 2018) and reported productivity (Feng & Savani, 2020) when compared to males. Whilst a range of explanations for these proposed differences are suggested, systemic biases women face is often suggested to explain gender differences in work outcomes (Feng & Savani, 2020). Whilst age is not often considered a significant predictor of wellbeing (Jebb et al., 2020) it is likely that older workers experience greater levels of subjective productivity due to typically higher levels of experience within the industry (Nurdiawati et al., 2020). Whilst these differences have been well established in the literature, they are yet to be frequently tested within Australian samples in light of the pandemic.

2.   Theory and Hypothesis Development

2.1 Border theory

The utilization of border theory to conceptualise work life conflict allows for a more structured approach to understanding the impact that working from home has on workers' wellbeing and productivity. Clarke (2000) developed border theory, an organisational psychology theory that can be used to conceptualise how an individual's family and work lives are integrated. The author argued that it is important to consider the boundaries between individuals work and family life as the two concepts are highly interconnected. Research suggests that there is no possible way an individual's work does not impact on their family life, and similarly that there is no possible way that their family life does not impact on their work (Putnik, Houkes, Jansen, Kant & Nijhuis, 2018). Specifically, psychological states can rarely be isolated to either the work or life domain (Kinnunen et al., 2017). Respective stressors, achievements and obligations impact both on an individual's productivity at work and wellbeing at home (Kinnunen et al., 2017). Although there is no clear separation, it is suggested that there are invisible borders between an individual's work and family life (Clark, 2000). What makes these borders rather than distinct separations, is that borders are ever changing boundaries which allow for altering levels of family life and work life impacting upon one another (Clark, 2000).

Extensive research has been conducted to examine how workers can leave their work stress at work. Practices such as mindfulness can help mitigate the effect that someone's work stress has on their life (Chin, Slutsky, Raye & Creswell 2019). However, there is little evidence that such practices are able to create a strong, long lasting and impermeable barrier between work stress and life stress (Tinline & Cooper, 2019). Similarly, many employers expect that their employees home lives will not impact upon the quality of their work. Policies such as allowing employees time off to deal with life stressors have demonstrated effectiveness in reducing the impact of this stress on productivity (Plotkin, 2013). Yet, these policies do not address the problem, but rather create a temporary and short term separation between work and life domains (Plotkin, 2013). Overall, there is a lack of robust literate surrounding the separation of work and family lives, with even less exploring the likely reduced separation when individuals transition to remote work settings (Hyland & Prottas, 2017).

2.2 Work interfering with family conflicts

Work interfering with family conflicts are typically associated with the impact of work on general family or personal functioning and wellbeing (Clark, 2000). Work interfering with family conflicts can be primarily understood by the factors of fatigue, lack of time to spend with family, and lack of contact with family due to work related factors (Gao & Zhao, 2014). The relationship between work interfering with family conflicts have been explored more extensively than the relationship between family interfering with work conflicts (Amstad et al., 2011). Indeed, the literature demonstrates a robust relationship between increased work related conflicts and reduced wellbeing overall (Gao & Zhao, 2014). However, a meta-analysis found that across the literature, few studies exploring work interfering with family conflicts tended to explore domain unspecific outcomes such as wellbeing (Amstad et al., 2011). As such, it is important to consider the relationship between the specific factors of fatigue, time spent with family, and contact with family and the more general factor of wellbeing as an outcome measure.

Gao and Zhao (2014) highlight three key factors that relate to work interfering with family conflict. Firstly, the very nature of work requires employees to exert both physical and mental effort when they are at work, resulting in fatigue. Spending longer on screens whilst working from home may increase the fatigue associated with remote work, whereas in offices face to face meetings as well as incidental conversations are likely protective against screen fatigue

(Narayanan et al., 2017). Secondly, lack of time to spend with family is a key factor associated with work interfering with family conflict. Studies have demonstrated that when engaging with remote work during COVID-19, many individuals were working longer hours than they did prior to the pandemic (Craig & Churchill, 2021). Infrastructure barriers, such as not having access to a network or company phone may have prohibited an employee from working outside work hours prior to the pandemic. However, with compulsory remote work decreasing these infrastructure barriers, employees may feel an increased pressure to be available outside of work hours. As such, working from home may lead to a decrease in time that individuals can spend with their family, even though they are not specifically required to be working for more hours. Thirdly, lack of contact with family members was identified as a key work interfering with family conflict. It is likely that remote work would reduce this element of work interfering with family conflict as the individual is in the same physical environment, allowing for more contact (Craig & Churchill, 2021). Contrary to the first two factors, increased contact with family due to remote work may be protective of individuals wellbeing. However, Goa and Zhao (2014) highlight the stronger relative importance of the first two factors when compared to the third, suggesting that it is likely that negative effects would be found when working remotely, given they are found in office environments.

2.3 Family interfering with work conflicts

Family interfering with work conflicts typically consider the impact that someone's family or personal life has on their productivity at work (Clark, 2000). Characteristics such as reduced time spent at work, distracting worries at work, and sleep issues due to family stress have all been demonstrated to cause conflict at work (Gao & Zhao, 2014). While the literature suggests there are clear relationships between family stress and productivity at work, there is considerably less research on the relationship between family interfering with work as opposed to work interfering with family (Amstad, Meier, Fasel, Elfering & Semmer, 2011). Specifically, meta-analytic studies have called for increased research to be conducted into the relationship between family stress and work performance (Amstad et al., 2011).

Gao and Zhao (2014) identified worries and problems associated with the family, that cause an employee to spend less time at work than they want to, as a key family interfering with work conflict. Personal and family worries distracting individuals when they are at work, as well as activities and chores at home inhibiting someone from getting sufficient sleep are identified as other key family interfering with work conflicts.

2.4 Theory development

The COVID-19 pandemic response resulted in a large percentage of the Australian population transitioning to remote work. During this time, there was a lack of literature surrounding employee wellbeing and productivity which was specifically focused on compulsory, full time work from home. Border theory framework can be utilised to conceptualise how work and family conflicts impact both wellbeing and productivity. It is likely that factors such as fatigue, availability and contact with family will be increased during work from home when compared to working at centralised locations. Alternatively, worries, distractions and sleep problems are more likely increased during work from home when compared to working at centralised locations. As such, the aim of the current study was to explore the relationship between border conflict variables, wellbeing, and productivity when working remotely.

Two primary research questions were developed to help respond to this aim: What family interfering with work factors are associated with decreased productivity when working from home? And what work interfering with family factors are associated with decreased wellbeing when working from home? Two hypotheses were generated based on the previous research literature.

> **H1:** *There will be a negative association between border conflict variables and wellbeing.*
>
> **H2:** *There will be a negative association between border conflict variables and productivity.*

3. Method

3.1 Study design

This study used cross-sectional survey data obtained by the research team. The cross-sectional study design was selected as it provided practical advantages with safe and efficient data collection during the pandemic (Wang & Cheng, 2020). Additionally, data obtained from the survey was able to directly address study aims and hypotheses, suitable for assessing associations between multiple study variables at a single time point. Ethics approval was obtained from The Deakin University Human Research Ethics Committee (HEAG-H 190-2020).

3.2 Participants

Participants were 340 adults aged 18 - 62 years (M_{age} = 33.98, SD_{age} = 8.80). To be eligible, individuals needed to be over the age of 18, living in Australia and working from home for at least one hour per week. Further details of participants' characteristics are presented in the results section.

3.3 Procedure

The research team collated the demographic variable items and each of the work-family conflict scale, wellbeing scale and productivity scale into a survey on Qualtrics (Qualtrics, 2020). Convenience sampling was utilised during lockdown periods to collect timely data from people experiencing remote work. Participants were recruited via Reddit pages for geographical areas within Australia (e.g., RMelbourne, RVictoria, RAustralia). Geographical subreddits were selected to provide a more representative and less biased sample rather than subreddits related to working from home. A member of the research team posted a brief description of the study with a link to the plain language statement. After clicking the link provided, participants were instructed to read the plain language statement which ended with four checkboxes containing the eligibility criteria and informed consent. The plain language statement informed participants that results were non-identifiable, thus reducing the likelihood of social desirability bias. If participants did not check one or more of the boxes, they were directed to a page that thanked them for their time and interest in the survey and provided them with resources if any distress arose as part of the survey. Participants that checked all four boxes were redirected to the Qualtrics survey where responses were automatically saved on the secure, online database (Qualtrics, 2020). The survey had a range of different scale endpoints and formats to reduce the likelihood of common method bias (Podsakoff et al., 2003). After completing the survey, participants were directed to a page that thanked them for their time and interest in the survey and provided them with resources if any distress arose as part of the survey.

3.4 Tools for data collection

3.4.1 Border conflict

Work-Family conflict was measured utilising the 8-item, Work-Family conflict scale (WFCS; Baron et al., 2007). The WFCS is a standardised and validated measure of *Work-Family conflict* (Carlson, Kacmar & Williams, 2000; Matthews, Kath & Barnes-Farrell, 2010). The WFCS comprises of 2 subscales assessing *work interfering with family conflict* (e.g., *After work, I am too tired to do some of the things I'd like to do;* α = 0.82) and *family interfering with work conflict* (e.g., *I am often too tired at work because of the things that I have to do at home;* α = 0.78). Each subscale has 4 items which are rated on a 5-point scale ranging from 0

= 'strongly disagree' to 4 = 'strongly agree.' Subscale scores are the average of each subscale, with higher scores indicating higher work/family conflict.

3.4.2 Wellbeing

The 7-item, Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS; Stewart-Brown et al., 2009) was utilised to assess the subjective *wellbeing* of study participants ($α = 0.85$). The SWEMWBS is a validated and standardised measure of *wellbeing* (Fat, Scholes, Boniface, Mindell & Stewart-Brown, 2017). Items are rated on a 5-point scale ranging from 0 = 'none of the time' to 4 = 'all of the time', with feelings and thoughts rated over the last two weeks (e.g., *I've been feeling optimistic about the future*). Each item is positively worded, and the total score is the average of each item score with higher scores representing higher levels of wellbeing.

3.4.3 Productivity

The 18-item Individual Work Performance Questionnaire (IWPQ) was utilised to assess *productivity* (Koopmans et al., 2016). This measure is a standardised and validated measure of self-report *productivity* (Ramos-Villagrasa, Barrada, Fernández-del-Río & Koopmans, 2019). The IWPQ consists of 3 subscales assessing *task performance* (behaviours that benefit good and/or service production; $α = 0.89$.; e.g., *I planned my work optimally*), *contextual performance* (behaviours that positively influence the social and/or psychological work environment; $α = 0.88$; e.g., *I took on extra responsibilities*), and *counterproductive work behaviours* (behaviours that harm organisational wellbeing; $α = 0.77$; e.g., *I made problems at work bigger than they were)*. Each subscale is made up of 5 items, except for contextual performance which is made up of 8 items.

Participants rated their work conduct over the past three months on a 5-point scale ranging from 0 = 'seldom' to 4 = 'always.' Items of the counterproductive workplace behaviour subscale were reverse coded. Total score reflects the addition of each subscale score, with higher total scores indicating higher productivity ($α = 0.83$).

3.4.4 Demographic variables

Participants reported sample characteristics as part of the survey. Participants reported their age, gender, highest level of education, socioeconomic status (SES), employment status, occupation, housing type, workspace, number of others in house, area of their residents and workspace, if they were living with others working from home, disturbance in home and working hours.

3.5 Statistical Analysis Techniques

Sample characteristics were described using Means and Standard Deviations (*SD*) for continuous variables and percentages for categorical variables. Mean and *SD* were used to describe work-family conflict, productivity, and wellbeing variables. Pearson's correlation coefficients were reported for each study variable.

Assumption testing was first conducted to ensure data was acceptable to conduct regression analyses. Linear regressions were then conducted to assess how work-family conflict (Independent Variable; IV) predicted wellbeing or productivity (Dependent Variable; DV).

G*Power (Faul, Erdfelder, Lang & Buchner, 2007) was used to conduct power analysis and assess the number of participants required to achieve a power of .08. A correlation analysis with sixteen covariates included, alpha set at .05, and effect size (f^2) set at .20 found that 311 participants were required to reach a power of .08. SPSS was used to conduct all analysis with a significance level of .05 (IBM Corp., 2017).

4. Results

4.1 Sample Characteristics

Of the 560 participants who participated in the survey, 340 (60.71%) were included in the analysis. 216 participants were removed for incomplete responding (not attempting a single item of one or more of wellbeing or productivity scales), 4 participants were removed for nonsense responding.

Figure 1. Sample demographic characteristics (N = 340)

Characteristic	n (%) range
Age, M, (SD), range [a]	33.98 (8.80) 18 – 62
Gender	
Female	170 (50.00)
Male	160 (47.10)
Non-binary/ gender diverse	10 (2.90)
Education	
Some high school	6 (1.80)
Completed high school	28 (8.20)
Certificate	24 (7.10)
Diploma	35 (10.30)
Undergraduate degree	137 (40.30)
Postgraduate degree	89 (26.20)
PhD/Professional Doctorate	20 (5.90)
Other	1 (0.30)
Socio Economic Status, M, (SD)	5.78 (1.64) 1 - 9

Note. a. (N = 336)

Sample demographic characteristics are presented in Table 1. Most participants were female (50.00%), with 10 identifying as non-binary / gender diverse (3.40%). The average age was 33.98 (SD = 8.80) and most respondents reported their highest level of education as an undergraduate degree (40.30%). Most respondents indicated that they were above average social standing (SES) in their community 5.78 (SD = 1.68).

Figure 2. Sample work Characteristics (N = 340)

Characteristic	n (%) range
Employment status	
Full time	278 (81.8)
Part time	42 (12.40)
Casual	20 (5.90)
Working hours	36.93 (10.16) 0-65
Occupation	
Managers	48 (14.10)
Professionals	144 (42.20)
Technicians and Trade Workers	32 (9.40)
Community and Personal service	35 (10.30)
Clerical and Administrative	56 (16.50)
Sales	7 (2.10)
Machine operators and drivers	2 (0.60)
Other	16 (4.70)

Note. Occupation coded based upon ABS categories

Sample work characteristics are presented in Table 2. Most participants were employed full time (81.80%) and worked an average of 36.93 hours a week (SD = 10.16). Most respondents were professionals (42.20%), followed by clerical and administrative workers (16.50%),

managers (14.10%), community and personal service workers (10.30%), technicians and trades workers (9.40%), other (4.70%), sales workers (2.10%) and machine operators and drivers (0.20%).

Sample living characteristics are presented in Table 3. Most participants worked in a private office (64.00%) or communal living space (29.10%). Just under half (49.10%) were living with someone else who was working from home. Disturbance ratings were typically low, with vehicle traffic having the highest average ($M = 3.40$), followed by noise ($M = 1.90$) and then pollution ($M = 0.61$).

Figure 3. Sample living characteristics (N = 340)

Characteristic	*n* (%)
Workspace	
Private office space	158 (46.50)
Shared office space	37 (10.90)
Communal living space	99 (29.10)
Variety of different spaces	15 (4.40)
Bedroom	31 (9.10)
Others in house	1.57 (1.30) 0-12
Area	
House	160 (150) 21-600
Working space	14.33 (10.25) 1-209
Living with others WFH	167 (49.1)
Disturbance	
Vehicle traffic	3.4 (2.45) 0-10
Pollution	0.61 (1.08) 0-8
Noise	1.48 (1.93) 0-10

Note. WFH = Working from home

Descriptive statistics on the severity of border conflict, productivity and wellbeing scales are presented in Table 3. On average, work-family conflict scores were higher ($M = 3.19$ $SD = 1.04$) than family-work conflict ($M = 1.93$ $SD = 0.81$). The average wellbeing score ($M = 3.51$ $SD = 0.65$) was similar to the average productivity score ($M = 3.23$ $SD = 0.65$).

Figure 4. Mean (SD) and range of border conflict, productivity and wellbeing (N=340)

Variable	Mean	SD	Range
Work-family conflict	3.19	1.04	1.00 - 5.00
Family-work conflict	1.93	0.81	1.00 - 5.00
Productivity	3.51	0.65	1.44 - 4.94
Wellbeing	3.23	0.65	1.29 - 5.00

4.2 Reliability, validity and assumption testing

All measures used were reported to be valid and reliable as outlined in the method section of this paper. Prior to interpreting the results of the hierarchical multiple regressions, several assumptions were tested, and checks were performed. For each regression, no assumptions inspected were violated. No univariate outliers were detected through the inspection of stem and leaf plots and boxplots, and all residual statistics fell between the guidelines of 3.29 and -3.29 (Kannan & Manoj, 2015; Wu & Adams, 2013). Secondly, assumptions surrounding normality, linearity and homoscedasticity were met through the inspection of normal probability plots of standard residuals, and the scatterplot of standardised residuals against standardised predicted values and K-S test values above 0.001 (Yang & Mathew, 2018). Thirdly, no multivariate outliers were detected as leverage values were all below 0.14 ($3*(k-1)/n$; $k = 17$, $n = 340$; (Leys, Delacre, Mora, Lakens & Ley, 2019). Finally, assumptions

surrounding multicollinearity were not violated due to all tolerance scores being above 0.20 and all VIF scores being less than 0.50 (Daoud, 2017; Shrestha, 2020).

4.3 Correlation between study variables

Pearson's correlations between study variables are presented in Table 5. A significant positive correlation was found between work-family conflict and family-work conflict ($r = .30$, $p < .001$). Significant negative correlations were found between work-family conflict and both wellbeing ($r = -.34$, $p < .00$) and productivity ($r = -.16$, $p < .001$) as well as between family-work conflict and both of productivity ($r = -.31$, $p < .001$) and wellbeing ($r = -.22$, $p < .001$).

4.4 Associations between work-family conflict, productivity and wellbeing

Two hierarchical regressions were employed to test the hypothesis that border conflicts are negatively associated with either wellbeing or productivity, above and beyond the associations of previously explored confounding variables. Assumptions for all statistical analyses were met.

The first hierarchical regression examined wellbeing as an outcome variable. Unstandardized (B) and standardized (b) regression coefficients and squared semi-partial (or 'part') corrections (sr^2) for each predictor on each step of the hierarchical multiple regression are reported in Table 6.

At step one, demographic variables accounted for a significant 20% of the variance in wellbeing, $R^2 = .20$, $F (8, 273) = 8.56$, $p = <.001$. At step 2, work interfering with family conflict and family interfering with work conflict were added to the regression equation, accounting for an additional 11%, $\Delta R^2 = .11$, $\Delta F (2, 271) = 21.38$, $p = <.001$. Together, the variables explained 31% of the variance in wellbeing, $R^2 = .31$, $F (10, 271) = 12.15$, $p = <.001$. By Cohen's (1988) conventions, a combined effect of this magnitude can be considered "large" ($f^2 = .45$). Wellbeing was independently associated with each of the work interfering with family conflict (b = -0.27, $p < 0.001$), family interfering with work conflict (b = -0.17, $p = 0.01$), disturbance (b = -0.21, $p < 0.001$), socioeconomic status (b = 0.16, $p = 0.01$) and age (b = 0.09, $p = 0.01$) at step 2.

The second hierarchical regression examined productivity as an outcome variable. Unstandardized (B) and standardized (b) regression coefficients and squared semi-partial (or 'part') corrections (sr^2) for each predictor on each step of the hierarchical multiple regression are reported in figure 7.

At step one of the hierarchical multiple regression, demographic variables accounted for a significant 7% of the variance in productivity, $R^2 = .07$, $F (8, 273) = 2.65$, $p = .01$. At step 2, work interfering with family conflict and family interfering with work conflict were added to the regression equation, accounting for an additional 3% of the variance in productivity, $\Delta R^2 = .03$, $\Delta F (2, 271) = 5.18$, $p = .01$. Together, the variables explained 11% of the variance in productivity, $R^2 = .11$, $F (10, 271) = 3.22$, $p = <.001$. By Cohen's (1988) conventions, a combined effect of this magnitude can be considered "small" ($f^2 = .09$). Productivity was independently associated with each of family interfering with work conflict (b = -0.14, $p = 0.03$) and age (b = 0.17, $p = 0.01$) at step 2. Work interfering with family conflict was not independently associated with productivity (b = -0.14, $p = 0.08$).

Figure 5. Pearson's correlations between study variables (N = 340)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Work-Family Conflict	-																
2. Family-Work Conflict	.30*	-															
3. Wellbeing	-.34*	-.31*	-														
4. Productivity	-.16*	-.22*	.54*	-													
5. Age	.00	-.08	.20*	.19*	-												
6. Gender	.00	-.07	.00	.15*	.00	-											
7. Education	.01	.08	.00	-.03	.01	-.06	-										
8. Socio Economic Status	-.02	-.13*	.26*	0.09	.17*	-.16*	.13*	-									
9. Employment status	-.01	.11*	-.07	-.07	-.17*	.13*	-.01	-.21*	-								
10. Occupation	.01	0.11	-.12*	-.03	-.10	.11*	-.21*	-.21*	.29*	-							
11. Housing	.01	.02	.18*	.12*	.13*	-.04	-.17*	.09	.03	.00	-						
12. Workspace	.05	-.02	-.19*	-.17*	-.20*	.12*	-.14*	-.13*	.23*	.15*	-.11*	-					
13. Others in house	-.03	.10	.06	.05	-.06	-.12*	-.08	.03	.14*	-.05	.42*	.12*	-				
14. Area	-.01	.00	.19*	.14*	.15*	-.03	-.06	.14*	-.02	-.07	.61*	-.16*	.42*	-			
15. Living with others WFH	-.05	.03	.05	.07	.17*	.09	-.10	-.01	-.05	.01	.02	-.11*	-.21*	-.09	-		
16. Disturbance	.19*	.23*	-.31*	-.20*	-.23*	.05	-.05	-.15*	.08	.02	-.19*	.14*	.01	-.14*	-.14*	.19*	
17. Working hours	.14*	-.07	.04	.03	.27*	-.21*	.10	.26*	-.65*	-.32*	-.09	-.21*	-.19*	-.06	.00	-.01	-

Note. * = p < 0.05 (2-tailed); WFH = Working from home

Figure 6. Adjusted associations between work-family conflict and wellbeing

Variable	*B* [95% CI]	b	*sr²*
Step 1			
Education	-.01 [-.07, .04]	-.05	.02
Age	.01 [.00, .02]	.04	.09
Socioeconomic Status	.07 [.03, .12]	.17	.02
Occupants in house	.01 [-.05, .07]	.05	.03
Hours worked per week	-.00 [-.01, .00]	-.06	.00
Size of House	-.00 [-.00, .00]	.09	.00
Size of workspace	.00 [-.00, .01]	.09	.00
Disturbance	-.14 [-.18, .08]	-.29	.03
Step 2			
Education	-.01 [-.05, .04]	-.02	.02
Age	.01 [.00, .02]	.09	.00
Socioeconomic Status	.06 [.02, .10]	.16	.02
Occupants in house	.02 [-.04, .08]	.05	.03
Hours worked per week	-.01 [-.01, .01]	-.01	.04
Size of House	.00 [-.00, .00]	.10	.00
Size of workspace	.00 [-.00, .01]	.04	.00
Disturbance	-.10 [-.15, -.05]	-.21	.03
Work interfering with Family conflict	-.17 [-.24, -.10]	-.27	.03
Family interfering with work conflict	-.11 [-.20, -.03]	-.14	.05

Figure 7. Adjusted associations between work-family conflict and productivity

Variable	*B* [95% CI]	b	*sr²*
Step 1			
Education	-.02 [-.08, .03]	-.05	.03
Age	.01 [.00, .02]	.18	.00
Socioeconomic Status	.01 [-.04, .06]	.02	.03
Occupants in house	.01 [-.06, .07]	.01	.03
Hours worked per week	-.00 [-.01, .01]	-.02	.00
Size of House	-.00 [-.00, .00]	.08	.00
Size of workspace	.00 [-.00, .01]	.01	.00
Disturbance	-.01 [-.11, .00]	-.12	.03
Step 2			
Education	-.02 [-.07, .04]	-.03	.03
Age	.01 [.00, .02]	.17	.01
Socioeconomic Status	-.00 [.05, .05]	-.00	.03
Occupants in house	.01 [.05, .08]	.03	.03
Hours worked per week	-.01 [-.01, .01]	.00	.00
Size of House	.00 [.00, .00]	.08	.00
Size of workspace	.00 [-.01, .01]	-.00	.00
Disturbance	-.03 [-.09, .02]	-.07	.03
Work interfering with Family conflict	-.07 [-.14, .02]	-.11	.04
Family interfering with work conflict	-.11 [-.21, -.01]	-.14	.05

5. Discussion

The current study aimed to explore the relationship between border conflict, wellbeing, and productivity when working remotely. A range of interesting findings emerged. The first hypothesis was supported, as both work interfering with family conflict and family interfering with work conflict had a negative association with wellbeing. Additionally, the second hypothesis was partially supported as family interfering with work conflict had a negative association with productivity. However, work interfering with family conflict was not associated with productivity.

Both work interfering with family conflict and family interfering with work conflict was negatively associated with wellbeing, consistent with findings from Goa and Zhao (2014). Overall, the relationship between border conflicts and an individual's wellbeing was much stronger than the relationship between border conflicts and productivity. Research suggests that when individuals are experiencing greater conflicts between their work and family lives, their psychological and physical health tends to be lower (Gao & Zhao, 2014). Alternatively, individuals may be able to better compartmentalise the conflict as an issue in their family life and continue working productively, despite their poor wellbeing. Trends from research across COVID-19 have demonstrated that many organisations are placing an increased emphasis on wellbeing when compared to before the pandemic (Geirdal et al., 2021; Mills, Ramachenderan, Chapman, Greenland & Agar, 2020). The relationship between wellbeing and productivity is often used to make a business case for organisations to focus on wellbeing (Nielsen et al., 2017). As such, if organisations are not considering the impact that decreased work and family borders when working from home are having on their employees' wellbeing, they will likely find it challenging to improve wellbeing. It is likely that wellbeing interventions that focus on the impact of working from home on family life will lead to greater increases in wellbeing, when compared to compartmentalised interventions that bolster workplace wellbeing such as trivia events, drinks and check-ins that are often employed (Mills et al., 2020).

Consistent with the findings of Goa and Zhao (2014), when working in office environments, family interfering with work conflicts were negatively associated with productivity when working remotely. When the demands of the individual's personal life impact on their work, the efficiency at work decreases. The relationship between productivity and family interfering with work conflict is likely bidirectional. Individuals are likely less productive when their personal demands, fatigue and preoccupations are heightened (Nielsen et al., 2017). Additionally, when individuals are feeling less productive at work, it is probable that they feel as though their personal life takes up a greater influence in their life (Nielsen et al., 2017). Interestingly, the only demographic variable that was found to be independently associated with productivity was age. Evidence suggests that there is a strong and robust relationship between age and productivity across a range of settings, with older workers being typically more productive than younger workers on self-report measures of productivity (Haynes, Suckley, & Nunnington, 2017). As such, researchers and employers alike seeking to improve productivity may find the best results when focusing on interventions to improve young worker productivity both in terms of outputs required, but also in understanding what is expected of them as employees.

Contrary to findings by Goa and Zhao (2014), work interfering with family conflicts were not associated with productivity. Studies have suggested that when someone feels less productive at work, they experience greater disturbance in their family lives (Nielsen et al., 2017). It has been suggested that those who are less productive may have had to stay back to complete unfinished work or may take decreased mood from lack of productivity into their home lives. It is possible that when working from home, individuals erect greater

psychological borders between their work and family lives, meaning that when they log off for the day, their lack of productivity does not carry across into their home lives. Alternatively, those who are working productively may be spending longer hours working due to decreased physical barriers between work and family lives, thus reducing the strength of the previously found directional relationship. Additionally, as a self-report measure of productivity was utilised, it may be possible that the level of error in productivity was higher than if an external report was to be used. As such, bias may increase error in reporting leading to reduced accuracy in the findings (Ramos-Villagrasa et al., 2019).

In line with previous research, a range of demographic variables were independently associated with productivity and wellbeing when working remotely. Interestingly, disturbance was the strongest predictor of wellbeing. It is possible that high levels of environmental disturbances such as noise and pollution led to individuals having subjectively poorer feelings of wellbeing. Alternatively, it is possible that those with lower levels of wellbeing may be more likely to notice environmental disturbances surrounding them (Clark et al., 2020; Houthuijs, Swart, & van Kempen, 2018). Conversely, age was the strongest predictor of productivity in the sample. Results demonstrated that as age increased, so did an individual's experience of productivity. It is possible that as age increases, experience and maturity increase an individual's ability to produce work. Alternatively, it may be possible that young workers feel subjectively less confident in their ability to complete work, especially with less perceived support of a remote working environment and rated their productivity lower. Overall, demographic variables have an impact on an individual's subjective experience of productivity and wellbeing when working from home, consistent with findings in centralised working locations.

Average scores for wellbeing and productivity within this study were in line with population averages (Koopmans et al., 2016; Stewart-Brown et al., 2009). Many articles and anecdotal experiences have suggested that wellbeing severely decreased during the lockdowns across 2020 (Zacher & Rudolph, 2021). However, emerging research suggests that wellbeing decreased less than was initially projected and reported (Rossell et al., 2021). It is suggested that while experiences of health and happiness fluctuated across these isolated periods, a sense of cohesion and collective suffering reduced the likelihood of severe decreases in wellbeing (Rossell et al., 2021). Similarly, many articles and anecdotal experiences have suggested that productivity would decrease substantially when employees started working from home (Beno & Hvorecky, 2021). Again, emerging literature is suggesting that the pandemic has shifted attitudes, with a revolutionised conceptualisation of productivity which focuses less on time spent sitting at a desk and deliverable outcomes, but rather on an individual's subjective experience of the amount of work that they were able to achieve (Beno & Hvorecky, 2021). Considering the current study captured a self-report measure of subjective wellbeing, it is evident that although individuals have transitioned to working from a different environment, they feel as though they are productive when working remotely, albeit likely a different conceptualisation of what productive work is (Beno & Hvorecky, 2021).

5.1 Theoretical Implications

Average scores for work interfering with family conflict were higher than those for family interfering with work conflict within the current study. That is, when individuals were working remotely, they felt as though their work tended to have a greater impact on their personal and family life than their family and personal life did on their work life. The difference found within this remote working population was more extreme than other studies where individuals are working in blended modes or at centralised office locations (Gao & Zhao, 2014). Interestingly, many papers suggest that working from home increases positive

outcomes for employees at home such as being able to spend extra time with loved ones, complete chores at home and have reduced commute times (Johnson et al., 2020). However, these findings suggest that individuals work lives are impacting their family lives, potentially due to decreased separation between work and family lives. It is possible that employees are more susceptible to working past their typical finish time and are working longer hours, without the physical barrier of leaving the office stopping them from working (Hunter, 2019). Alternatively, it is possible that organisations are expecting more of their employees when working from home during the pandemic. Employees may feel pressure to work longer hours to achieve what is expected of them. Additionally, family work conflict was lower than what is often found in centralised work locations (Gao & Zhao, 2014). Many studies suggested that demands such as home-schooling, would impact individuals work performance (Johnson et al., 2020). However, these findings were not replicated in the current study. It is possible that the added flexibility of remote work means that individuals feel more confident in fulfilling their family and personal needs whilst working, thus reducing the impact of conflict on their psychological states. Overall, findings regarding average levels of border conflict follow a different pattern to what is typically seen in centralised working locations, highlighting the importance of further study into the construct with instances of remote work increasing.

5.2 Limitation and Future Recommendations

The current study had several strengths which built upon the limitations and recommendations of previous studies. Primarily, this study was the first of its kind to explore border conflict in remote work settings. This endorses the value of border theory when exploring the work outcomes of productivity and wellbeing and extends upon traditional conceptualisations which have typically examined working within office settings. Furthermore, this study represents a relatively large sample which looks at the different types of border conflict (i.e., work-family conflict and family-work conflict) in isolation. A key limitation of the current study was the extended period of collecting data and formulating results. As such, the typically increased severity of restrictions and length of time working remotely for those who responded later in the survey may have decreased levels of productivity and wellbeing consistent with other studies (Bosua, Kurnia, Gloet & Mendoza, 2017). A second limitation is that no inferences regarding directionality or causality between variables can be made due to the cross-sectional study design. Additionally, even though the sample was representative of the population, underlying factors influencing participants to use Reddit may have biased results (Shatz, 2017).

Research is needed to develop an understanding of how border conflicts impact wellbeing and productivity when working remotely when compared to flexible and full-time office-based work. Researchers wishing to explore these variables may wish to conduct this research longitudinally to provide greater insights into the long-term impacts of social isolation and fatigue when working remotely and flexibly. Studies have begun to explore productivity and wellbeing in remote work with Australian samples (Bosua et al., 2017), however, these relationships are yet to consider the impact of psychological constructs such as border theory. Further, researchers interested in personality may wish to examine the impact of personality factors on remote work outcomes through the border theory lens to provide insights into clusters of people who are likely to be susceptible to particularly negative outcomes when working from home, highlighting the need for interventions.

5.3 Organizational Implications

Findings from the current study highlight a range of implications for organisations. Organisations need to be aware that employee's wellbeing and productivity are especially contingent on their personal lives when working remotely. Human resource functions may

wish to consider developing processes and policies such as compulsory non-meeting times and flexible work hours in order to reduce the likelihood of work and family conflicts. Additionally, leaders should be educated surrounding the impact that high levels of family interfering with conflict can have on their staff's wellbeing and performance. They can then use this knowledge to develop strategies that reduce their staff's border conflicts, especially when individuals are feeling decreased well-being or productivity.

5.4 Conclusion

The current study demonstrated relationships between border conflicts and each of productivity and wellbeing when working remotely. Through examining these relationships during the pandemic, novel insights can be applied to improve outcomes for both organisations and employees in the evolving world of work. This study highlights the importance of exploring a range of factors to understand work-life balance.

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Brief Bios of the Authors

David Goullet – David Goullet is a Generally Registered Psychologist working as a Consultant in the Organisational Performance and Leadership practice at Nous Group, a Melbourne based management consultancy. David's work primarily focuses on the implementation of evidence-based interventions to improve organisational culture as well as assess and develop leadership capability.

As a recent graduate of the Master of Psychology (Organisational) program at Deakin University, Australia, David completed his studies at the end of 2021. This manuscript was developed from the Empirical Report requirement from the course. David wrote his empirical report with the overarching hope to apply these research findings into his practice. David has achieved this objective through utilising Border theory when assisting clients with their employee work from home strategy.

Nathan Sciulli – Nathan Sciulli graduated from the Master of Psychology (Organisational) program at Deakin University, Australia at the end of 2021. As part of the requirements of the degree, Nathan completed a research thesis titled 'Working from home and nature contact: The benefits of indirect nature contact on wellbeing'. The aim of the study was to investigate the relationship between contact with nature on wellbeing and productivity in adults working from home.

Tristan Snell - Tristan is an experienced Counselling Psychologist with practical experience working in private practice, employment services, psychiatric rehabilitation, university counselling, and school settings. His research interest are in Wellbeing, Counsellor Education and Environmental Psychology, particularly the impact of the physical environment on mental health and learning. Tristan is a senior lecturer at Deakin University, where he teaches into counselling and psychology programs in the Faculty of Health, and supervises students undertaking graduate studies in psychology.