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To Work or Not to Work Remotely? Work-To-Family Interface Before and During the COVID-19 Pandemic

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Abstract

Background: *This paper provides a brief, evidence-based reflection on two experiences with remote working, "old-normal" remote working and mandatory work-from-home during the COVID-19 pandemic. From the perspective of applied psychology in work and organizations, we used self-report instruments to assess variations in work-family conflict and enrichment, frequency of information and communication technologies (ICT) use, and recovery in two longitudinal studies.* **Methods:** *The first study involved 148 individuals from the technical-administrative staff of a large Italian University during an experimentation of remote working (one day per week) in 2019. The second study, conducted during the first lockdown in 2020, involved 144 individuals (convenience sample, heterogeneous by profession). All participants completed a self-report online questionnaire two times six months apart.* **Results:** *The two studies are not directly comparable, but they provide a dynamic idea of the effects of the two types of work arrangements. In Study 1, an experimental remote working condition (one day per week), participants reported decreased work-family conflict and improved recovery experiences. Study 2 noted a slight deterioration in work-family enrichment in the emergency remote working condition.* **Conclusions:** *These findings showed the usefulness of monitoring specific indicators related to the work-life interface using validated instruments and in a longitudinal perspective to assess each experience. We briefly discuss these aspects to inform future organizational decisions and actions for the "new normal".*

1. Introduction

During the COVID-19 pandemic, emergency remote working ensured continuity of work, reducing the risk of contagion, and was seen by some as a global experiment in remote working [1]. Indeed, the experience has been impressive, and many organizations, for example, in the public sector [2], which had previously resisted adopting remote working, have had to embrace it. In Italy, according to the Smart Working Observatory of the Polytechnic of Milan, 570,000 people (3.6% of the working population) worked remotely before the COVID-19 pandemic. On 09 March, the Italian government announced the first national partial lockdown. At the end of April, the Italian Ministry of Labor and Social Policy reported 1,827,792 remote workers, 8% of the workforce. The 68% of the public administration staff worked remotely during the first lockdown. Considering the large number of people involved in remote work during an emergency, many studies have been conducted on this

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form of work over the past three years. However, essential differences between emergency and standard remote work should be considered.

In this brief research report, we present key findings from two two-wave studies, one conducted before the pandemic (in a state condition where people could have chosen to work remotely) and the other one carried out during the first lockdown (in a mandatory work from home condition) [3]. Based on these findings, we emphasize the need to longitudinally observe specific indicators of the work-home interface to assess the effects of specific work arrangements in different contexts on a case-by-case basis.

Applying a psychological perspective, we focused on the work-to-family interface [4-6], referring to the Work-Home Resources Model (W-HR) [7], according to which the work-home interface can be described as a series of processes.

Each process proceeds from demands and resources in the work (or home) sphere, through changes in personal resources, to outcomes in the home (or work) sphere. Work-family conflict is a process in which demands in the work sphere deplete personal resources in the family sphere. Work-family enrichment is a process of resource accumulation: both domains can increase personal resources, improving home and family outcomes.

For both studies, data were collected through self-report instruments measuring work-family conflict and enrichment, recovery experiences, and frequency of information and communication technologies (ICT) used to observe differences in these dimensions between the two waves after remote working. The first study involved some technical-administrative employees of the University of Turin who participated in a "smart working experimentation" (maximum one day per week) in 2019. The second study included a heterogeneous and convenient sample of remote workers during the first lockdown (2020).

Although we know that the two studies are not directly comparable because they deal with different populations, we will discuss the variations of the variables over time and observe the differences between an experimental situation under non-emergency conditions and the first pandemic period. The discussion will allow us to outline some considerations for the future of organizations and remote working and, by describing the questionnaire used for monitoring, provide concrete guidance for future projects evaluating work arrangements.

1.1. Remote Working and the Work-Family Interface

Since the first introduction of remote working in the 1970s, the benefits have been and continue to be recognized [3, 8-10]. Reported benefits include: improving the quality of work by increasing concentration; promoting job satisfaction and well-being through better time management; promoting the experience of a balance between paid work and the rest of life; promoting inclusion and diversity management; offering work solutions that are also suitable for people with disabilities; protecting organizational continuity in a pandemic situation; reducing the commuting time between home and work; reducing costs; and reducing environmental impact [10, 11]. Some studies have confirmed that flexible work arrangements, such as remote work, can reduce stress levels by allowing greater control over one's time and work tasks [12]. A positive relationship has also been found between remote working and performance and job satisfaction [11, 13]. However, some risks of remote working have also been pointed out. For example, lower satisfaction due to social isolation [13] and negative consequences for pay, learning, and career development. In addition, the lack of physical boundaries has been shown to lead to a blurring of psychological and temporal boundaries between work and home, resulting in an excessive dedication to work [14]. These consequences may be related to national and organizational cultural factors associated with a strong appreciation of presence in the workplace [15]. Some systematic reviews of papers published in PubMed/Medline identified several problematic consequences of massive mandatory remote working, such as blurring of boundaries, anxiety, depression, stress, technostress, workaholism, fatigue, and lower satisfaction [9, 16, 17].

Since the onset of the COVID-19 pandemic, the scientific community of Work and Organizational

Psychology has worked to establish a research and intervention agenda [1]. Among the many areas of study highlighted in this agenda, the work-family interface and remote working are critical. The heavy use of ICT should also be considered, as well as problems related to a lack of recovery (with the impossibility of leaving the house and the closure of the main care facilities) [18].

The two two-wave studies presented in this paper were conducted using the same questionnaire but under two very different remote working conditions: (i) the first was voluntary, and the second (ii) was mandatory and in an emergency. In the questionnaire, we investigated specific dimensions related to the W-HR model [7]. In particular, we considered work-family conflict and enrichment, the use of ICT for work purposes [19], and the recovery process [20], as described below.

1.1.1. Work-Family Conflict and Enrichment

Based on role theories, according to which each role requires the person to invest energy and time, work-family conflict (WFC) is defined as a type of inter-role conflict in which the demands of work and family are mutually incompatible [21]. The study of conflict is fundamental to assessing work-related stress in Italy, as numerous adverse effects on emotional exhaustion and burnout [22], job satisfaction, and life satisfaction [23] have been identified.

A growing number of studies also looked at the positive side of the work-family interface, namely work-family enrichment (WFE) [5]. Enrichment is a process in which one role improves the quality of the other: "Work-to-family enrichment occurs when work experiences improve the quality of family life" [24] (p. 73). WFE is essential for employees and organizations and has been positively associated with work-, family-, and health-related outcomes (e.g. [25, 26]).

Although work-life balance is one of the goals of remote working, studies conducted before the health emergency have not confirmed the expected positive effects. Remote working often leads to increased interference between family and work, an issue that could cause a deterioration in concentration [10, 11, 27]. During the COVID-19 lockdown, people experienced the simultaneity of work and family roles, as it was impossible to separate the two domains physically. With schools and childcare facilities closed, parents had to work and perform care responsibilities simultaneously, including supporting homeschooling during the working day. This led to increased work and family demands and a deterioration of the work-family interface, as several works in Italy and abroad have shown (e.g. [28]). During the pandemic, using a person-centered approach, Huyghebaert-Zouaghi et al. [29] observed moderately stable levels of profiles related to the work-home interface [7] in a sample of workers from the United States and the United Kingdom, some of whom worked remotely. The longitudinal study, with two waves over three months between 2020 and 2021, also allowed them to observe that people faced more challenging and hindering demands when working remotely. Although there was no national lockdown in the two countries, the period over which the study was conducted does not allow for a distinction between emergency and non-emergency remote working.

Why does remote working not always improve the relationship between work and family? The main explanations relate to the loss of boundaries between the two spheres of life [30] and to the fact that working from home may lead to an indefinite extension of working hours on the one hand and increase family responsibilities assumed by the individual on the other [31]. These aspects have been exacerbated during the lockdown [28].

A systematic review by Vitória et al. [17] showed that the pandemic had a complex impact on WFC, exacerbated by some aspects (the "imposed" remote work) and attenuated by other variables (such as support both at work and at home); as for WFE, variations were rare, as also shown by the study of Chambel et al. [14], which, however, also did not find variations concerning WFC.

1.1.2 Frequency of Technology Use for Work Purposes

In the two studies presented in this paper, we observed how job demands related to technology use changed during remote working. Although ICT facilitated and accelerated various work processes and

expanded the available information, it also exposed workers to specific work-related stress risks [8, 19]. This adverse process was also found among remote workers during the COVID-19 outbreak [32, 33]. In addition, the importance of creating conditions that allow people to disconnect from technology and recover has been widely emphasized, given that the request to complete additional work tasks using technology during rest time has been associated with WFC and a lack of recovery [8, 19].

1.1.3 Recovery Experiences

Recovery is the other element that the two studies conducted sought to investigate. Recovery is when the individual functional systems that have been stressed during a stressful experience, such as work, return to their pre-stress levels [34]. During recovery, personal resources are restored, or new ones are generated. The recovery process can be explained by the effort-recovery model [35] and the Conservation of Resource theory (COR) [36]. The former assumes that the functional systems activated during work should no longer be strained to return to restraint levels for the recovery process to be effective. The COR theory [36] states that individuals try to defend and maintain their resources to protect themselves from stress. Based on these premises, Sonnentag and Fritz [34] identified four recovery experiences: detachment from work, relaxation, mastery (including engaging in stimulating activities outside of work), and control over leisure. In addition to positive effects on well-being (e.g., [20]) and performance (e.g., [37]), recovery may moderate the relationship between WFC, psychological strain, and life satisfaction [38]. The lack of adequate recovery can lead to significant health problems in the medium and long term [20, 35]. Resources are central in the W-HR model [7], and recovery as a process of maintaining or creating new personal resources can be a compelling element in this positive dynamic.

2. Methods

2.1 Procedure

The first study was conducted in 2019 when the technical-administrative staff of the University of Turin participated in the experimentation of remote working for one day per week for six months. No more than 25% of the employees in each department participated. Participation was voluntary. In the case of excessive applications, a ranking was established based on some criteria (e.g., home-work distance). Participants completed a self-report questionnaire at the beginning of the experimentation in April 2019 for two weeks (Time 1 - T1) and after six months in October 2019 for two weeks (Time 2 - T2). The research project was conducted and supervised by a team of female researchers who created the questionnaire, collected the data through the LimeSurvey platform, and returned the results to participants after T2 through a summary of the findings. The second study was conducted at the beginning of the pandemic using a self-report questionnaire via the Google Forms platform in two separate waves: from 6 to 20 April 2020, during the first lockdown (Time 3 - T3), and after six months from 5 to 19 October (Time 4 - T4). Participation in the study was completely voluntary.

Both studies followed the Declaration of Helsinki: they did not involve any treatment or other procedures that might affect the psychological or social well-being of the participants. In both cases, participation in the study was voluntary in exchange for informed consent; anonymous data collection and data confidentiality were ensured according to Regulation GDPR 2016/679. An alphanumeric code allowed the assignment of participants to T1 and T2. As for the first study, the whole procedure was carried out with the support of the Uniform Guarantee Committee and approved by the union tables; study 2 obtained the approval of the Bioethics Committee of the University of Turin (Document No. 150561, 03 April, 2020).

2.2. Participants

In the first study, a total of 148 individuals (8.4% of the total technical-administrative staff of the University of Turin) completed the two questionnaires (response rate = 79%; respondents at T1 were 187), 62.8% of whom were women; the mean age was 45.46 years (SD=6.97). Of the respondents, 73% practiced care activities for children or parents.

In the second study, 144 individuals participated in the T3 and T4 surveys, working an average of 4 days per week. 68.1% of the sample was female, and the average age was 48.83 (SD=9.91). While in the first study, the participants were employed in the same organization and invited to participate in the survey, in the second study, the sample was a heterogeneous and convenience one, with participants from different sectors who were more difficult to reach remotely. This explains the lower response rate between T3 and T4, which is 21% (there were 670 participants in T3). While the number of dropouts is high, it is common in online surveys, especially when participants participate voluntarily and do not receive incentives [39]. In the sample, 41.7% worked in the private sector and 58.3% in the public sector. The occupational profiles were: white collar (56.3%), middle manager (25.7%), top manager (15.3%), and missing (2.8%). 71% of respondents reported caring for children or parents.

2.3. Measures

Work-family conflict (WFC) was assessed with the 5-item Italian version [4] of the measure developed by Netemeyer et al. [6] using a 5-point frequency scale from 1 "Never" to 5 "Always".

Work-family enrichment (WFE) was assessed with three items [5] using a 5-point agreement scale from 1 "Not at all agree" to 5 "Completely agree".

Frequency of technology use (FTU) was measured through 3 items [40] using a 5-point frequency scale from 1 "Never" to 5 "Always".

Recovery experiences were measured through 12 items (3 for each of the four recovery strategies, detachment, relaxation, mastery, and control; Likert scale from 1 "Not at all agree" to 5 "Completely agree") of Sonnentag and Fritz's [34] short scale (already used in Italian studies, e.g. [41]). An overall score of recovery experiences has been used in the two studies.

In addition, the questionnaire asked for information on gender, age, whether participants were involved in child or parental care activities, and, only in the second study, the number of remote working days per week, occupational sector, and profile.

For each construct, the average response score was calculated as indicated in the sources of the measures used and in previous work using the same scales. No cutoff values for these measures are reported in the international or national literature.

2.4. Data Analysis

The software IBM SPSS Statistics version 28 has been used to perform analysis. First, the normality of the scale items was checked using a z-score obtained by dividing the values for skew and kurtosis by their standard errors. Consistent with Kim's recommendations [42], the normality assumption is confirmed based on the sample size of the studies ($50 < n < 300$) when the z-score is less than $|3.29|$. The preliminary analysis confirmed the normality of the items except for three of the six items in the frequency of technology use scale, which was excluded.

Because of the high number of dropouts between the two survey waves, an independent-sample t-test was conducted to rule out significant differences between the final sample and the larger sample (which consisted only of participants in the first wave). Then, Cronbach's alpha coefficients were calculated. Finally, paired-sample t-tests were conducted to detect significant differences in the four observed variables (WFC, WFE, FTU, and recovery experiences) between each study's first and second waves.

3. Results

3.1 Preliminary Analysis

In both studies, to assess possible differences between the final sample and the larger sample that had participated only in the first wave, t-tests were conducted for all four variables. No statistically significant differences were found for any variables, as shown in Table 1. In addition, a χ^2 test showed that gender distribution did not vary between the two waves in either study (Study 1, χ^2=.44, p=.510; Study 2, χ^2=.92, p=.821).

3.2 Assessment of Significant Differences in the Four Variables Between the Two Waves

Table 2 summarizes the variables considered and the differences found, shown graphically in

Table 1. Means and standard deviations of all variables measured at the first wave and *t*-test results to compare sample at T1 with sample at T2 and sample at T3 with sample at T4.

Variable	M+SD Study 1-T1 Sample T1	M+SD Study 1-T1 Sample T2	*t-test*$_{(331\ df)}$	M+SD Study 2-T3 Sample T3	M+SD Study 2-T3 Sample T4	*t-test*$_{(812\ df)}$
WFC	2.73±0.88	2.71±0.87	0.12, p=.902	2.42±0.89	2.32±0.83	1.16, p=.245
WFE	2.77±1.03	2.80±1.03	-0.27, p=.790	3.33±0.98	3.27±1.04	0.69, p=.489
FTU	3.14±1.31	3.15±1.36	-0.58, p=.954	2.82±1.21	2.60±1.24	1.97, p=.054
Recovery	3.19±0.81	3.19±0.78	-0.09, p=.932	3.34±0.80	3.33±0.83	0.17, p=.867

All measures have a 5-point Likert scale. Study 1, T1 N=187, T2 N=148; Study 2, T3 N=670, T4 N=144.
WFC (work-family conflict); WFE (work-family enrichment); FTU (frequency of technology use).

Table 2. Means, standard deviations, Cronbach's alpha values of all variables, and *t*-test results.

Variable	M+/-SD & α Study 1-T1	M+/-SD & α Study 1-T2	*t*-test$_{(147\ df)}$	M+/-SD & α Study 2-T3	M+/-SD & α Study 2-T4	*t*-test$_{(143\ df)}$
WFC	2.71±0.87 α=.88	2.60±0.86 α=.90	2.13, p=.035	2.32±0.83 α=.89	2.33±0.92 α=.92	-0.17, p=.867
WFE	2.80±1.03 α=.87	2.86±1.07 α=.83	-1.01, p=.315	3.27±1.04 α=.87	3.01±1.00 α=.88	3.35, p=.001
FTU	3.15±1.36 α=.94	3.29±1.32 α=.95	-1.78, p=.077	2.60±1.24 α=.91	2.61±1.24 α=.91	-0.18, p=.859
Recovery	3.19±0.78 α=.90	3.34±0.76 α=.90	-3.27, p=.001	3.33±0.83 α=.91	3.23±0.86 α=.92	1.59, =.114

All measures have a 5-point Likert scale. Study 1 N=148; Study 2 N=144.
WFC (work-family conflict); WFE (work-family enrichment); FTU (frequency of technology use).

Figures 1 and 2. Study 1, conducted before the 2019 pandemic, showed significant differences between T1 and T2. In particular, the results showed that WFC decreased between T1 (M=2.71, SD=0.87) and T2 (M=2.60, SD=0.86) [t (147)=2.13, p=.035] and recovery experiences increased between T1 (M=3.19, SD=0.78) and T2 (M=3.34, SD=0.76) [t (147)=-3.27, p=.001]. In study 2, conducted at the beginning of the pandemic COVID-19, the only difference concerned WFE, which decreased significantly from T3 (M=3.27, SD=1.04) to T4 (M=3.01, SD=1.00) [t (147)=3.35, p=.001].

4. Discussion

Although these two studies are not directly comparable and considering the relative stability of dimensions related to the work-home interface during the pandemic [7, 29], some interesting results emerged. In particular, Study 1 showed that the introduction of a planned, agreed, and prepared remote working regime under normal conditions [43] enabled a reduction in WFC and an increase in recovery experiences: this is consistent with other studies describing the positive effects of a fully chosen work-from-home arrangement [9, 17].

In the first study, experimental remote working appeared to be associated with a reduction in WFC despite a perceived increase in the use of ICT for work purposes, likely offset by greater autonomy in managing work and personal time. On the other hand, WFE remained stable, in line with a general lower fluctuation of this variable [17]. When remote working was part-time (in this case, only one day per week), positive changes could be observed in some indicators considered, even in the face of an

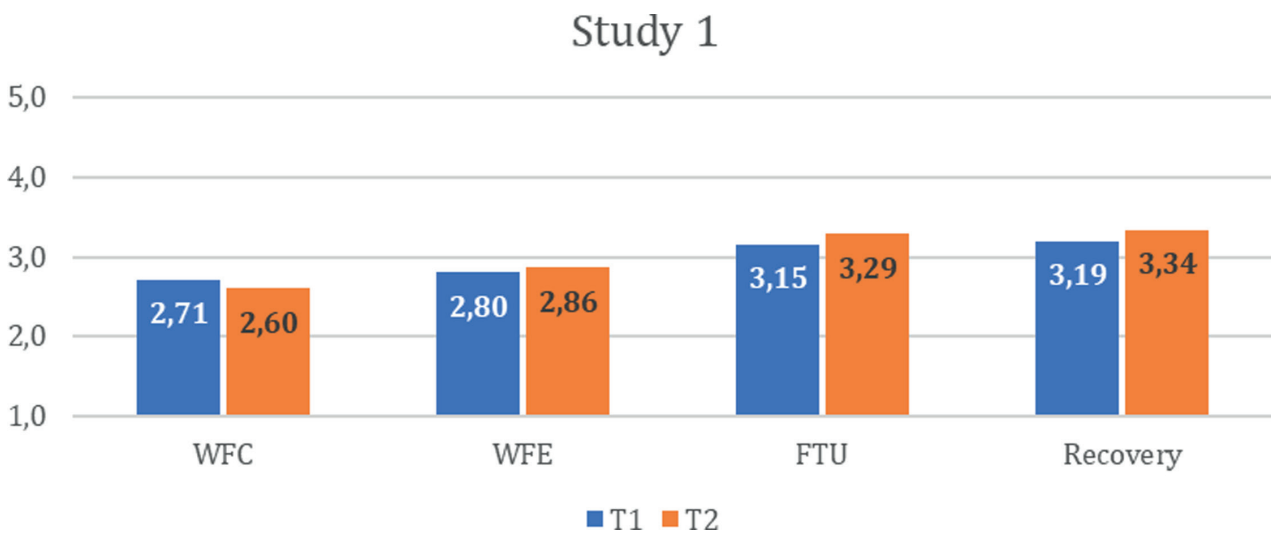

Figure 1. Variable Means of Study 1. WFC (work-family conflict); WFE (work-family enrichment); FTU (frequency of technology use).

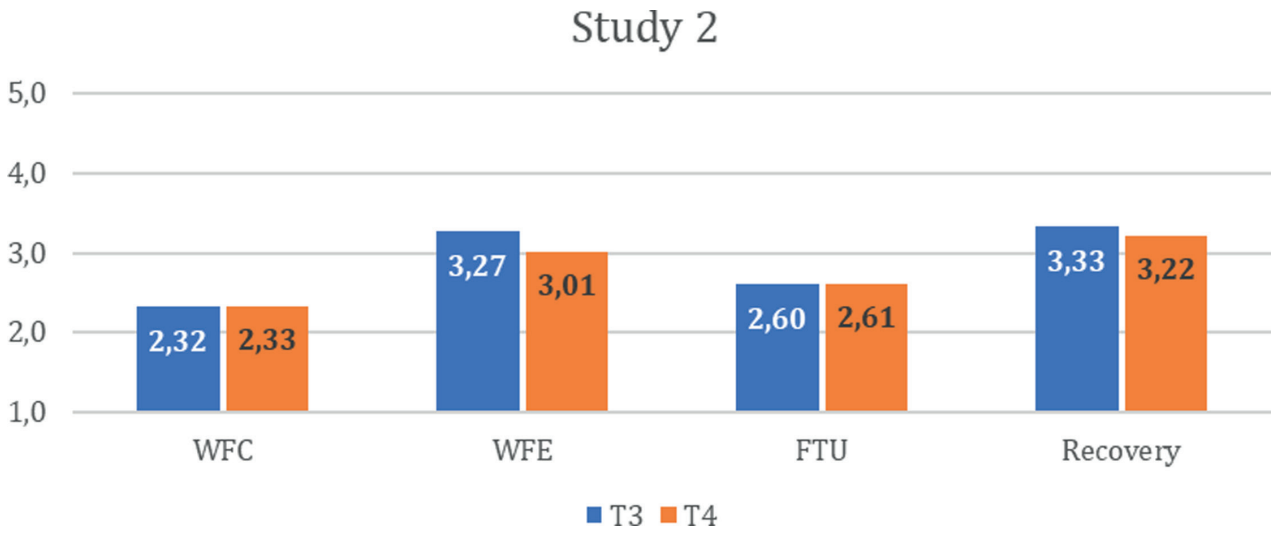

Figure 2. Means of all variables of Study 2. WFC (work-family conflict); WFE (work-family enrichment); FTU (frequency of technology use).

intensification of digital use. It is also important to emphasize that in the case of the experimentation, the workgroups in which the participants worked were prepared in advance for the new working mode, and the rest of life did not present any new critical aspects. Recovery experiences also improved, suggesting that workers involved had no problems disconnecting and finding ways to regain their personal resources. Overall, these results are consistent with the assumption that part-time remote working does not disturb the work-family interface [11].

In the second study, we observed a different trend in the variables: WFE decreased to a statistically significant extent, while WFC and the other variables remained stable. A stable level of WFC, but only in the work-to-family direction, was also found in the German study by Reimann et al. [44]. Other studies, such as the work mentioned above

by Chambel et al. [14], have not found statistically significant changes for WFC or WFE in a sample of bank employees: This suggests the importance of conducting targeted monitoring to capture the specifics of different realities. Interestingly, the frequency of ICT use was not excessively high over the period considered. It had probably already reached the highest level in the first survey ("absorbing" the change in the way of working that occurred immediately, in the very first weeks) in a sample that was not so stressed in this respect.

4.1 Limitations

This contribution has many limitations, starting with the fact that the two studies presented refer to two different populations: therefore, the results are not systematically comparable. Furthermore, the mean values of the variables measured at the first wave show substantial differences between the two samples, which limits the possibilities for comparison. Indeed, Study 2 participants appeared to experience a more favorable working conditions regarding life balance (lower WFC, higher WFE, lower FTU). In addition, the sample in the first study represents almost the entire population involved in remote working before the pandemic, while the sample in the second study is one of convenience, which limits the generalizability of the results. Another important limitation of the study is that conflict and enrichment in the family-to-work direction were not measured. In addition, the size of the two samples does not allow us to capture differences concerning many variables that might be associated with the work-family interface, such as gender, age, living arrangements, caregiving responsibilities, presence, and the number of young children, family structure, socioeconomic level, presence of mental health problems, fear of the pandemic. Moreover, regarding the results of the second study, we did not consider the different employment sectors and types. Finally, there is no evidence in these two studies of perceptions of work quality or productivity, either in the form of self-report, supervisor assessment, or objective data. Moreover, an analytical reflection on the measures used could support future studies.

5. Conclusions and Implications

Although some research, including longitudinal studies, has addressed the work-home interface issue during the pandemic (e.g., [45]), to our knowledge, this is the only paper that presents two studies that used the same measures in remote work emergencies and remote work non-emergencies in a specific national context, providing an opportunity to monitor the different experiences of remote working experiences. While this brief research report has the limitations noted above, it is intended to stimulate thinking about monitoring and evaluating the impact of remote working on the work-to-family interface and to provide important insights to organizations engaged in evaluating and defining the next work arrangements.

According to the findings, it is essential that organizations carefully evaluate the choices to be made in the coming months by referring to previous experiences and monitoring the transition period. Moreover, the experience of the pandemic should be considered as a learning ground to assess training needs, critical issues encountered, and groups that need special attention due to less well-functioning relationships between leaders and followers, lack of autonomy, lack of clarity about goals, tasks, or roles [9, 17].

Referring to the few systematic data available during the pandemic, e.g., those of the technical-administrative staff of Italian universities [2], it appears that training was mainly brief and sometimes improvised, and in most cases related to the technologies and applications used for security and legal aspects, but less focused on the effective development of digital skills. An important training need is related to the support of work dynamics, organizational elements, and psychological dimensions that remote working requires.

This is a broad panorama for which it is important to make investments and find new ways of conceiving training to improve the quality of working life. These investments, consistent with the funding lines recently established by the government (Transition 4.0, Law 234/2021), among others, are necessary both for the "new normal" and for creating contingency plans. Promoting digitalization does not mean working only on technological infrastructure,

developing ICT systems, and improving applications, nor working exclusively on developing knowledge and technical skills related to the digital world. From a transdisciplinary perspective, change must be understood as a whole that focuses on the relationship between people, organizational culture, work, and technologies, with particular attention to digital attitudes and competence at individual and organizational levels [9, 46]. The ultimate goal is always to promote both efficiency and quality of life.

Institutional Review Board Statement: The first and second studies were conducted according to the guidelines of the Declaration of Helsinki. As for the first study, the whole procedure was carried out with the support of the Uniform Guarantee Committee and approved by the union tables. Study 2 obtained the approval of the Bioethics Committee of the University of Turin (Document No. 150561, 03 April, 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Declaration of Interest: The authors declare no conflict of interest.

References

1. Rudolph C, Allan B, Clark M, et al. Pandemics: Implications for Research and Practice in Industrial and Organizational Psychology. *Ind Organ Psychol.* 2020; 14(1-2,):1-35. Doi: 10.1017/iop.2020.48
2. Ghislieri C, Sanseverino D, Addabbo T, et al. The Show Must Go On: A Snapshot of Italian Academic Working Life during Mandatory Work from Home through the Results of a National Survey. *Soc Sci.* 2022;11(3):111. Doi: 10.3390/socsci11030111
3. Anderson D, Kelliher C. Enforced remote working and the work-life interface during lockdown. *Gen Manage.* 2020;35(⅞):677-683. Doi: 10.1108/GM-07-2020-0224
4. Colombo L, Ghislieri C. The work-to-family conflict: Theories and measures. *TPM Test Psychom Methodol Appl Psychol.* 2008;15(1): 35-55.
5. Ghislieri C, Martini M, Gatti P, Colombo L. The "B"ight Side" "f the Work-Family Interface: a Brief Work-Family Enrichment Scale in a Sample of Health Professionals. TPM Test Psychom. *Methodol Appl Psychol.* 2011;18(4):211-230.
6. Netemeyer RG, Boles JS. Development and Validation of Work-Family Conflict and Family-Work Conflict Scales. *J Appl Psychol.* 1996;81(4):400-410. Doi: 10.1037/0021-9010.81.4.400
7. Ten Brummelhuis LL, Bakker AB. A Resource Perspective on the Work–Home Interface: The Work–Home Resources Model. *Am Psychol.* 2012;67(7):545-556. Doi: 10.1037/a0027974
8. Ghislieri C, Dolce V, Sanseverino D, et al. Might insecurity and use of ICT enhance internet addiction and exhaust people? A study in two European countries during emergency remote working. *Comput Hum Behav.* 2022;126:107010. Doi: 10.1016/j.chb.2021.107010
9. Marino L, Capone V. Smart Working and Well-Being before and during the COVID-19 Pandemic: A Scoping Review. *Eur J Investigation Health Psychol Educ.* 2021;11(4):1516-1536. Doi: 10.3390/ejihpe1104010
10. Toscano F, Zappalà S. Smart working in Italia: origine, diffusione e possibili esiti. *Psicol Soc.* 2020;2:203-223.
11. Allen TD, Golden, TD, Shockley, KM. How Effective Is Telecommuting? Assessing the Status of Our Scientific Findings. *Psychol Sci Public Interest*. 2015;16(2):4068. Doi: 10.1177/1529100615593273
12. Azar S, Khan A, Van Eerde W. Modelling linkages between flexible work arrangement's and organizational outcomes. *J Bus Res.* 2018;1(9):134-43. Doi: 10.1016 /j.jbusres.2018.06.004
13. Gajendran RS, Harrison, DA. The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. *J Appl Psychol.* 2007;92(6):1524-1541. Doi: 10.1037/0021-9010.92.6.1524
14. Chambel MJ, Carvalho VS, Santos A. Telework during COVID-19: Effects on the Work–Family Relationship and Well-Being in a Quasi-Field Experiment. *Sust.* 2022;14(24):16462. Doi: 10.3390/su142416462
15. Dolce V, Ghislieri C, Molino M, Vayre. Leadership and the use of technology: health implications. In *Digitalization of Work. New Spaces and New Working Times*, Vayre, E.; Eds, Wiley: 2022, pp. 49-72.
16. Chirico F, Zaffina S, Di Prinzio RR, et al. Working from home in the context of COVID-19: A systematic review of physical and mental health effects on teleworkers. *J Health Soc Sci.* 2021;6(3):319-332. Doi: 10.19204 /2021/wrkn8
17. Vitória BdA, Ribeiro MT, Carvalho VS. The work-family interface and the COVID-19 pandemic: A systematic review. *Front Psychol*. 2022;13:914474. Doi: 10.3389 /fpsyg.2022.914474
18. Ghislieri C, Molino M, Dolce V, Sanseverino D, Presutti M. Work-family conflict during the Covid-19 pandemic: teleworking of administrative and technical staff in healthcare. An Italian study. *Med Lav*. 2021;112(3):229-240.
19. Ghislieri C, Emanuel F, Molino M, et al. New technologies smart, or harm work-family boundaries management? Gender differences in conflict and enrichment using the JD-R theory. *Front Psychol.* 2017;8: 1070. Doi: 10.3389/fpsyg.2017.01070
20. Kinnunen U, Feldt T, Siltaloppi M, Sonnentag S. Job Demands–Resources Model in the Context of Recovery: Testing Recovery Experiences as Mediators. *Eur J Work Organ Psy.* 2011;20:805-832. Doi: 10.1080/1359432X .2010.524411

21. Greenhaus JH, Beutell NJ. Sources of Conflict Between Work and Family Roles. *Acad Manage Rev.* 1985;10(1):76-88. Doi: 10.5465/amr.1985.4277352
22. Amstad FT, Meier LL, Fasel U, Elfering A, Semmer NK. A meta-analysis of work-family conflict and various outcomes with a special emphasis on cross-domain versus matching-domain relations. *J Occup Health Psychol.* 2011;16(2):151-169. Doi: 10.1037/a0022170
23. Allen TD, French KA, Dumani S, Shockley KM. A cross-national meta-analytic examination of predictors and outcomes associated with work-family conflict. *J Appl Psychol.* 2020;105(6):539-576. Doi: 10.1037/apl0000442
24. Greenhaus JH, Powell GN. When work and family are allies: A theory of work-family enrichment. *Acad Manage Review.* 2006;31(1):72-92. Doi: 10.5465/amr.2006.19379625
25. Shockley KM, Singla N. Reconsidering work-family interactions and satisfaction: A meta-analysis. *J Manage.* 2011;37(3):861-886. Doi: 10.1177/0149206310394864
26. Van Steenbergen EF, Ellemers N. Is managing the work-family interface worthwhile? Benefits for employee health and performance. *J Organ Behav.* 2009;30(5):617-642.
27. Golden TD, Veiga JF, Dino RN. The impact of professional isolation on teleworker job performance and turnover intentions: does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter? *J Appl Psychol.* 2008;93(6):1412-1421. Doi: 10.1037/a0012722
28. Power K. The COVID-19 pandemic has increased the care burden of women and families. *Sustain Sci Pract Policy.* 2020;16(1):67-73. Doi: 10.1080/15487733.2020.1776561
29. Huyghebaert-Zouaghi T, Morin AJS, Fernet C, et al. Longitudinal profiles of work-family interface: Their individual and organizational predictors, personal and work outcomes, and implications for onsite and remote workers. *J Vocat Behav.* 2022;134:1-21. Doi: 10.1016/j.jvb.2022.103695
30. Ga S, Yoon D. The Effect of Work-Related ICT Use During Non-Business Hours on the Work-Family Conflict: The Moderated-Mediation Effect of Work-Life Balance and Workaholism. *Prod Rev.* 2019;33(4):211-238.
31. Hammer LB, Neal MB, Newsom JT, et al. A longitudinal study of the effects of dual-earner couple's stilization of family-friendly workplace supports on work and family outcomes. *J Appl Psychol.* 2005;90(4):799-810. Doi: 10.1037/0021-9010.90.4.799
32. Dolce, V, Vayre E, Molino M, Ghislieri C. Far away, so close? The role of destructive leadership in the job demands–resources and recovery model in emergency telework. *Soc Sci.* 2020;9(11):196. Doi: 10.3390/socsci9110196
33. Spagnoli P, Molino M, Molinaro D, et al. Workaholism and Technostress During the COVID-19 Emergency: The Crucial Role of the Leaders on Remote Working. Front Psyhcol. 2020;11:620310. Doi: 10.3389/fpsyg.2020.620310
34. Sonnentag S, Fritz C. The Recovery Experience Questionnaire: development and validation of a measure for assessing recuperation and unwinding from work. *J Occup Health Psychol.* 2007;12(3):204-221. Doi: 10.1037/1076-8998.12.3.204
35. Meijman TF, Mulder G. Psychological aspects of workload. In *Handbook of Work and Organizational Psychology, Work Psychology, 2nd,* Drenth, PJD Thierry, H Wolff, CJ, Eds.; Psychology Press: 1998, Volume 2, pp. 5–33.
36. Hobfoll, SE. Conservation of resources: A new attempt at conceptualizing stress. *Am Psychol.* 1989;44(3):513-524. Doi: 10.1037/0003-066X.44.3.513
37. Sonnentag S, Bayer U-V. Switching off Mentally: Predictors and Consequences of Psychological Detachment from Work during Off-Job Time. *J Occup Health Psychol.* 2005;10:393-414. Doi: 10.1037/1076-8998.10.4.393
38. Moreno-Jiménez B, Mayo M, Sanz-Vergel AI, et al. Effects of work-family conflict on ememployees' well-being: the moderating role of recovery strategies. *J Occup Health Psychol.* 2009;14(4):427-440. Doi: 10.1037/a0016739
39. O'NeilM, Penrod SD, Bornstein, BH. Web-based research: Methodological vavariables' effects on dropout and sample characteristics. 2003. *Behav Res Meth Instr Comp*. 2003:35;217–226. Doi: 10.3758/BF03202544
40. Molino M, Wodociag S, Ghislieri C. *The effects of new technologies on the work-family interface: A comparative study between Italy and France*. Paper presented at the XIX EAWOP Congress, Turin, Italy, 30th of May 2019.
41. Molino M, Cortese CG, Ghislieri C. Daily effect of recovery on exhaustion: A cross-level interaction effect of workaholism. *Int J Environ Res Pu.* 2018;15(9):1920. Doi: 10.3390/ijerph15091920
42. Kim HY. Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Res Dent End.* 2013;38(1):52-54.
43. Spagnoli P, Manuti A, Buono C, Ghislieri C. The good, the bad and the blend: The strategic role of the "middle leadership" in work-family/life dynamics during remote working. *Behav Sci.* 2021;11(8):112. Doi: 10.3390/bs11080112
44. Reimann M, Peters E, Diewald M. COVID-19 and Work–Family Conflicts in Germany: Risks and Chances Across Gender and Parenthood. *Front Sociol.* 2022;6:780740. Doi: 10.3389/fsoc.2021.780740
45. Çetin M, Dede B, Kökalan Ö, Dede E. A Multilevel Investigation of the Effects of Daily Work–Family Interaction on Daily Affect During the COVID-19 Pandemic. *J Fam Issues*. 2021;43(12):1–22. Doi: 10.1177/0192513X211044487
46. Molino M, Cortese CG, Ghislieri C. Technology acceptance and leadership 4.0: A quali-quantitative study. *Int J Env Res Pub He.* 2021;18(20):10845. Doi: 10.3390/ijerph182010845

Appendix

Supplemental Material A

Work-Family Conflict

Thinking about the balance between work and the rest of life, how often do you find yourself in the following situations on a scale of 1 - Never to 5 - Always?

- The demands of my work interfere with my home and family life.
- The amount of time my job takes up makes it difficult to fulfill family responsibilities.
- Things I want to do at home do not get done because of the demands my job puts on me.
- My job produces strain that makes it difficult to fulfill family duties.
- Due to work-related duties, I have to make changes to my plans for family activities.

Work-Family Enrichment

Thinking about the intertwining of your work and family life, we ask you to express your degree of agreement with the following statements using the scale from 1 - Not at all agree to 5 - Strongly agree.

- At work I develop new skills, and this helps me to be a better family member.
- At work I feel positive emotions, and this helps me to be a better family member.
- At work I feel a sense of accomplishment, and this helps me to be a better family member.

Recovery

Thinking about what usually happens when you finish work, please indicate how much you agree with the following statements using the scale from 1 - Not at all agree to 5 - Completely agree.
During time after work

- ... I forget about work.
- ... I don't think about work at all.
- ... I distance myself from my work.
- ... I do relax things.
- ... I use the time to relax.
- ... I take time for leisure.
- ... I seek out intellectual challenges.
- ... I do things that challenge me.
- ... I do something to broaden my horizons.
- ... I decide my own schedule.
- ... I determine for myself how I will spend my time.
- ... I take care of things the way that I want them done.

Frequency of Technology Use

Below are six questions regarding the frequency with which you are contacted outside your working hours. We ask you to answer using the scale from 1 - Never to 5 - Always.

How often do you...

- ...receive business emails after working hours?
- ...receive work emails on weekends and/or days off?
- ...receive work emails during holidays?