

The Work-Family Roles Dynamics during Home-Based Teleworking

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Abstract

Teleworking from home gives workers some degree of temporal and spatial flexibility, and at the same time, poses some consequences in terms of conflicts from the demands, requirements, expectations, and behaviors from the forces associated with both work roles and family roles. This integrative literature review investigated the conditions or forces that are responsible for the bi-directional inter-role conflict and the outcomes of the conflict when employees are teleworking from home, by synthesizing new and grey literature about work-family conflict and home-based teleworking. The forces from the work and family systems which are organizational, personal, spatial, temporal, technological, psychological, and familial are the crux of the work-to-family conflict and family-to-work conflict as they either cause friction or smoothness to the transition from work roles to family roles and vice versa during home-based teleworking. The forces either act as catalysts or inhibitors during the transition from work (family) roles to family (work) roles. The findings from this review were synthesized into the work-family roles dynamics model by incorporating concepts from physical sciences. The work-family roles dynamics model provides insights into the transition of home-based teleworkers and the work-to-family conflict and family-to-work conflict that ensue in the work and family systems. This article also offers a definition of work-family conflict based on knowledge from the synthesized literature. The work-family roles dynamics model posits new explanations about teleworking from home and bi-directional inter-role conflict. The work-family roles dynamics theory yields new ideas and questions for future research and implications for human resource management.

Keywords: family-to-work conflict, forces, teleworking, transition, work-to-family conflict

1. Introduction

Teleworking from home is a form of remote work which has replaced the traditional face-to-face work and has contributed to the rapid changes in the world of work. Work-from-home (WFH) enables concurrent coexistence of work and family spheres in the same physical space (Barriga Medina, Campoverde Aguirre, Coello-Montecel, Ochoa Pacheco, & Paredes-Aguirre, 2021). Even though before COVID-19 employees were more skeptical about remote work (RW) arrangements (Choroszewicz & Kay, 2019). Remote e-work is now recognized as an integral facet of the present and future of the workplace. Teleworking has both positive and negative consequences for employees, organizations, and work relationships (Gajendran & Harrison, 2007). Teleworking from home enables flexible work time, eradicates long distance commuting and non-essential journeys, and reduces exposure to pollution (Moglia, Hopkins, & Bardoel, 2021). Home-centered teleworking provides flexible work modality with small but beneficial effects in managing work-family requirements (Gajendran & Harrison, 2007). However, teleworking from home comes with challenges that must be addressed (Barriga Medina et al., 2021). The intrusion of work into the home blurs the boundary between work and family lives and causes conflict between work and family. Conflict between work and family occurs due to the permeability between the work and home environments in remote work settings and work-family conflict is a complex and multidimensional phenomenon (Serdaroglu, 2021). Time, energy, and behaviors devoted to fulfilling work responsibilities frequently compete with fulfilling family responsibilities (Chandler, 2021). The reconciliation of work and family during teleworking from home is complex, burdensome, and very stressful (Lagomarsino, Coppola, Parisi, & Rania, 2020). Stressors may trigger work-family conflict and work-life conflict increases psychological strain (van Zoonen et al., 2021). Work-family conflict has turned out to be a challenge for the contemporary society. 59.16% of 311 remote workers in China perceived that family interference with work causes decreased productivity (Sun, Liu, & Wang, 2023). Work-family conflict (WFC) is sometimes regarded as

a stressor that impacts wellbeing and behavior (Goullet, Sciulli, & Snell, 2022). Work-family conflict is a significant predictor of wellbeing and the wellbeing of employees is vital for organizational existence, performance, and survival (Al-Jubari, Mosbah, & Salem, 2022). Work-family conflict poses risk for public health in areas such as sleep problems, stress, anxiety, depression, cardiometabolic risk, and mortality (Chandler, 2021). Therefore, since the transition of home-based teleworker in conjunction with work-family conflict is under-investigated in literature, this study focused on how the transition of home-based teleworkers from work roles to family roles and vice versa is connected to work-family conflict.

2. Literature Review

2.1 Method

This article used an integrative literature review approach described by Torraco (2005) to synthesize findings from literature about home-based teleworking and work-family conflict. The method involves using guiding theories and laws for conceptual blending and illumination of the findings about teleworking from home and work-family conflict. The literature synthesized in this study were obtained from database searches that include PubMed, Emerald Insight, ProQuest, Science Direct, Taylor and Francis Online, and Wiley Online Library. The terms used for searching the databases include work-from-home OR remote work and inter-role conflict, and work-from-home OR teleworking OR remote work and work-family conflict. The search generated publications which were screened for their relevance and the literature that were not relevant were excluded. The exclusion criteria include focus on work-family balance, work-life balance, work-family integration, work-family spillover, work-family culture, flexible work arrangements that did not include teleworking from home, virtual work that is not done in the home but at client's site, and empirical studies that mentioned work-family-conflict without measuring WFC. While the inclusion criteria include work-from-home OR teleworking from home OR home-based teleworking AND work-family conflict, work-to-family conflict, family-to-work conflict, family interference with work, work-interference with family, negative work-home interaction and negative home-work interaction. Appendix B provides an illustration of the identification, screening, and selection process. Based on the aforementioned search strategy 70 studies (three qualitative, sixty-three quantitative, and four mixed-methods) and five literature review publications were synthesized. The seventy studies include nine pre-COVID-19 home-based teleworking and work-family conflict articles, 53 COVID-19 home-based teleworking and work-family conflict articles, one COVID-19 work-family conflict article, five pre-COVID-19 work-family conflict articles, one work-family facilitation article, and one smart work and family routine article. Appendix C shows the details of the studies. In addition, 17 publications about theories, laws, concepts, and measures which were sought for separately and seven web-based publications were included. The synthesis generated new knowledge and propositions about work-family conflict during teleworking from home, a definition of work-family conflict, and the work-family roles dynamics model.

3. Findings

3.1 The Work-Family Roles Dynamics

A role is the building block of social systems and the totality of the requirements facing an individual within social systems (Katz & Kahn, 1978). The sociological understanding of a role implies that there are behaviors expected of an individual who occupies a given social position or a pattern of behavior that is socially recognized, and which provides a means of identifying and placing an individual in the society (Britannica, n.d). Every social system has its own goals, relationships, interactions, shared approach, dependency, and roles. Individuals belong to many social systems and perform multiple roles in social systems. Work and family are two important components of adults' lives (Serdaroglu, 2021). Roles have labels which are attached to an individual according to the social system where the role is being performed e.g., an individual may hold the role of an employee at work, and a spouse and/or parent in the family, and a daughter or son in the family, etc.,

Work and family constitute different domains which are different in purpose, culture, language, acceptable behavior, thoughts, rules, how tasks are accomplished, and the two domains also influence each other (Clark, 2000). Work and family systems have distinct demarcations or borders separating one role from another. Roles have bounds which could be spatial or temporal (Ashforth, Kreiner, & Fugate, 2000). Borders are lines of separation between domains that establish the point at which domain relevant behavior starts and ends (Clark, 2000). Borders vary in flexibility and permeability. A border characteristic that is vital in home-based teleworking is permeability. Permeability is the extent that elements from one sphere enter the other spheres e.g., participating in work communication during family time (Clark, 2000). Permeability blurs boundaries even though it makes boundary crossing easier (Rice, 2017). The degree of permeability of boundaries when transitioning is associated with different benefits and costs (Ashforth et al., 2000).

Fulfilling the requirements in both work and family systems or performing roles in both work and family systems requires crossing the border separating one role (domain) from the other or transitioning from work (family) roles to family (work) roles. The work-family border theory indicates that people make daily transitions (slight or extreme) between work and family domains by crossing temporal, physical, and psychological borders and which involves complex interactions between the border crossers, and their work and family lives (Clark, 2000). Thus, the complex interactions between the border crosser, work, and family may result in inter-role conflict, especially for employees working from home, because of the blurred spatial and temporal borders unlike the case of employees working on the employers' site. Employees working from home may experience frequent temporal, physical, and psychological permeations when elements from the family (work) domain enter the work (family) domain and therefore cause interference. Interferences are inter-role conflict, which can be described as opposing pressures emanating from participating in different roles (Greenhaus & Beutell, 1985, p. 77). Inter-role conflict is a form of role conflict that occurs when individuals have multiple roles, whereby expectations, pressures, and behaviors from both domains are mutually incompatible (American Psychological Association [APA], n.d). Work-family conflict is "a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible whereby participation in the work (family) role is made more difficult by virtue of participation in the family (work) role" (Greenhaus & Beutell, 1985, p. 77). Work-family conflict is described as a form of inter-role conflict in which the general demands, time devotion, and strain created by the job interfere with performing family-related responsibilities. Family-work conflict is a form of inter-role conflict in which the general demands, time devotion, and strain created by the family interfere with performing work-related responsibilities (Netemeyer, Boles, & McMurrian, 1996, p. 401).

Thus, what are the causes of the inter-role conflict in the work and family systems? What are the intricate interactions, that is, the social systems processes or dynamics between the border crossers, their work and family roles that are responsible for the inter-role incompatibility or interference? What are the dynamics that make participation in one role difficult because of participation in another role? In home-based teleworking settings, the roles of an employee encompass socially defined attributes, requirements, behavior, obligations, expectations, and rights. Thinking about the causes of the inter-role conflict involves thinking about how these factors play out in both work and family roles or domains. Moreover, based on the on-going arguments, the salient features of a role include behaviors, expectations, demands, and requirements. Therefore, what makes the demands, requirements, expectations, behaviors, and pressure from one role incompatible with that of the other role? Hence, this article proposes the work-family roles dynamics model which organizes, describes, and explains the complex processes between work-from-home employees who are crossing the border from one role to another and the work and family systems.

In physical sciences, dynamics refers to the motion of material objects in relation to the physical factors that affect them such as force, energy, mass, and momentum. Dynamics entails the causes or why of motion (Britannica, n.d). Motion implies a change in the position of an entity with respect to its environment and time, and motion could be regarded as transition, which denotes a change or shift from one place to another (Britannica, n.d). Employees working from home have material, physical, sensible or corporeal properties, that are tangible qualities of a body in terms of shape, size, and resistance to forces (Merriam-Webster, n.d). The factors associated with the motion of a material body include forces which are influences, exertion, or pressure, and a force is something that can change the state of motion (Goc, 2005).

In congruence with the ideas of physical sciences, *the work-family roles dynamics theory suggests that the transition of home-based teleworkers from work (family) roles to family (work) roles is related to or dependent on conditions or contextual factors which are organizational, personal, spatial, temporal, psychological, technological, and familial (family specific)*. In the work-from-home settings, contextual factors operate in both work and family systems and which interfere with border crossing, and cause pressures between work roles and family roles. This article describes the contextual factors as forces because they exert influence in the work and family systems, and since a force is an influence that causes changes to a body (Zakrzewski, n.d; Chen, 2004). The forces exerted in the work and family systems are organizational, personal, spatial, temporal, psychological, technological, and familial. These forces are the systematic patterns found based on the analysis of findings from literature regarding home-based remote work and work-family conflict. The forces impact the remote workers' transition. A force changes the state of motion (Goc, 2005). Likewise, forces from the work (family) system change or impact the transition to family (work) roles during home-based teleworking, and cause incompatibility or pressure between work roles and family roles. The demands, requirements, expectations, and behaviors associated with these forces activate pressure and incompatibility between work roles and family roles. Thus, *work-family conflict is defined as the pressure and incompatibility between work roles and family roles because*

of the demands, requirements, expectations, and behaviors associated with organizational, personal, spatial, temporal, psychological, technological, and familial forces within the work and family systems.

Moreover, Isaac Newton's third law of motion indicates that whenever one object exerts a force on a second object, the second exerts an equal force in the opposite direction on the first object (Chen, 2004). The work system exerts forces on the family system and vice versa. Specifically, forces originating from the work system exert influence on the family system and forces originating from the family system exert influence on the work system. Thereby causing pressure or incompatibility in the work and family systems which is either work-to-family conflict (WFC) or family-to-work conflict (FWC) also known as work interference with family (WIF) and family interference with work (FIW). Therefore, blending together the ideas that roles have prominent characteristics that include demands, requirements, expectations, and behaviors and that when one object exerts a force on a second object, the second exerts an equal force in the opposite direction on the first object, and also that forces are exertion or sources of pressure and incompatibility, correspondingly, this article suggests that *work-to-family conflict occurs when the demands, requirements, expectations, and behaviors associated with the forces from the work system cause pressure and incompatibility with the demands, requirements, expectations, and behaviors connected to the forces from the family system. Family-to-work conflict occurs when the demands, requirements, expectations, and behaviors associated with the forces from the family system cause pressure and incompatibility with the demands, requirements, expectations, and behaviors connected to the forces from the work system.* Figure one portrays the bi-directional conflict.

Furthermore, the patterns found in literature were formalized as theoretical statement about the work-family roles dynamics. *The work-family roles dynamics theory states that the transition of home-based teleworkers from work (family) roles to family (work) roles is related to or dependent on forces which are organizational, personal, spatial, temporal, psychological, technological, and familial, whereby the forces act as catalysts or inhibitors, and forces from the work system exert influence or pressure in the family system while forces from the family system exert influence or pressure in the work system, thereby activating or suppressing work-to-family conflict and/or family-to-work conflict.* Teleworking from home, forces operating in the work and family systems, and the outcomes of the conflict are discussed in the following section.

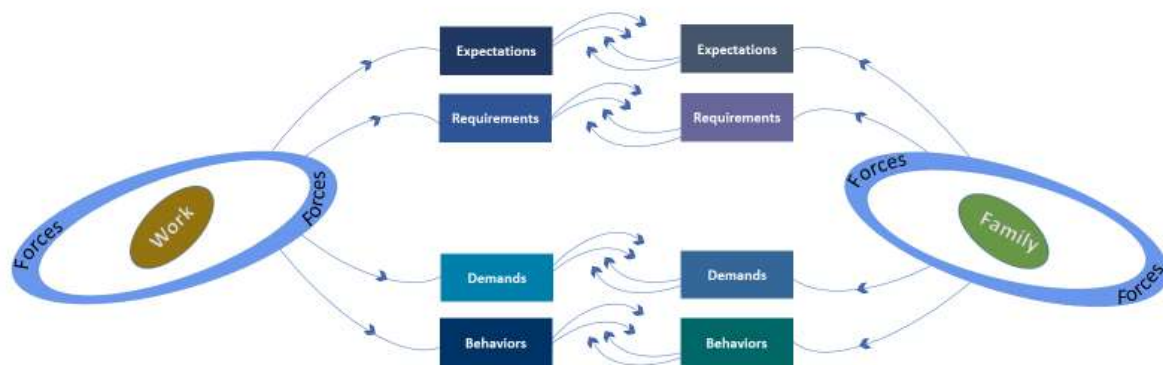


Figure 1. Work-family conflict

Source: created by the author (Eniola, 2023)

3.1.1 Home-based Teleworking

Telecommuting reduces work-to-family conflict for employees working in information and financial services organizations (Lautsch, Kossek, & Eaton, 2009). Remote work decreases work-family conflict, which in turn influences job satisfaction for employees working in talent acquisition, human resources, operations, client service, business development, and marketing (Schall, 2019). Six months after starting telework, the teleworkers in Canada experienced reduced role overload, stress, and problems managing family time, and extremely lower levels of work interference with family and family interference with work compared to when they were not teleworking (Duxbury, Higgins, & Neufeld, 1998). The technical-administrative staff of a hospital in Italy working from home during COVID-19 had a relatively low level of WFC (Ghislieri, Molino, Dolce, Sanseverino, & Presutti, 2021). However, work-home interference was the most-mentioned challenge of remote work during the pandemic in China (Wang, Liu, Qian, & Parker, 2020). Mandatory telework during the COVID-19 lockdown caused role overload, after-hours work-related technology use, and low job autonomy which created conflicts

between work and family spheres for full-time private and public sectors workers in Portugal (Andrade & Petiz Lous 2021). Individuals working remotely in Australia had higher work interfering with family conflict than family interfering with work conflict, that is, work-life impacted family-life possibly because of the decreased border between work and family lives (Goullet et al., 2022). Work-from-home has a positive relation with work-family conflict amongst full-time and part-time employees in Ireland, because an increase in WFH triggers a moderate increase in the conflict between work and family domains (Agbakwuru & Ejakpovi, 2022). In Klang Valley, Malaysia, work-family conflict increases when employees telecommute because of the inability to set clear boundaries between work and personal life and which results in work interfering with home-life and vice versa (Jaafar & Rahim, 2022), and online teaching negatively impacts Italian teachers work and life and triggers work-family conflict (Loscalzo, 2021).

3.1.2 Organizational Forces

Adequate job conditions for working from home that include work characteristics, work environment, and technical support are negatively related to WFC and FWC in Sri Lankan's professional fulltime employees (Wickramasinghe & Nakandala, 2022). Job insecurity and workplace pressure increased work-family conflict for employees working fully from home and hybrid workers (Serdaroglu, 2021). Colleagues' norms of responding quickly to work-related messages has a direct association with higher levels of WFC and FWC for remote workers in the USA and British Isles (Gillet, Austin, Huyghebaert-Zouaghi, Fernet, & Morin, 2022a). Besides, workload and monitoring are connected to higher work-home interference (Wang et al., 2020). Workload is one of the main determinants of work-family conflict in the work-from-home format (Molino et al., 2020). The job demands of finance employees had a positive and significant effect on work-family conflict during remote work in Indonesia (Nainggolan & Pusparini, 2021). Cognitive demands were positively related with WFC for technical-administrative staff (Ghislieri et al., 2021). Still, remote workers had lower work-to-family conflict than hybrid and office workers because of their tolerance to work overload and work ambiguity (Ağargün & Turgut, 2022). Role ambiguity has a positively significant association with work-life conflict (van Zoonen et al., 2021).

Flexibility at work has a negative relation with work-to-family conflict (Leung & Zhang, 2017). Flexibility in remote e-work is negatively related to work-family conflict (Fernandes, 2022). Flexible work schedules and telecommuting significantly lessened family-work conflict in the United States (Ongaki, 2019). Public servants' job control which includes skill discretion and decision authority had negatively significant effects on work-family conflict during work-from-home (Nainggolan & Pusparini, 2021). Job control moderates the association of hindrance stressors such as role ambiguity with work-life conflict, which implies that the impact of hindrance stressors on work-life conflict is less intense during higher job control (van Zoonen et al., 2021). In addition, job autonomy reduces work-family conflict by giving remote workers more control (Zakhem, Farmanesh, Zargar, & Kassar, 2022). Job autonomy positively moderates telecommuting's effect on work-to-family conflict i.e., lower levels of autonomy augment the effects of the extent of telecommuting on WFC compared to higher levels of autonomy (Golden, Veiga, & Simsek, 2006). Autonomy enables remote workers to have a lower work-to-family conflict than hybrid and office workers in Turkey (Ağargün & Turgut, 2022).

The same type of supervisory monitoring behaviors or practices for both telecommuters and non-telecommuters does not meaningfully reduce telecommuters' work-to-family conflict (Lautsch et al., 2009). Supervisory practices that require telecommuters to separate work-family roles or enact control over work-family boundaries benefited telecommuters in reducing work-family conflict (Lautsch et al., 2009). Frequent interactions with the supervisor reduced FIW and more access to information lessened WIF for salespeople who self-selected into remote work arrangements in the United States (Kiburz, 2016). Leader-member exchange (LMX) has a significant and negative association with employees' family-work conflict in remote work condition (Toscano, Zappalà & Galanti, 2022). Instrumental leadership which involves knowledgeable monitoring of the environment and performance, and implementation of strategic solutions during work-from-home is negatively connected to government employees' work-family conflict (Allgood, Jensen, & Stritch, 2022). Organizational trust in remote e-work has a negative relationship with work-family conflict (Fernandes, 2022).

Adequate organizational support neutralizes the challenges imposed by technostress and work-family conflict in remote work settings in a South African institution (Harunavamwe & Ward, 2022). Perceived organizational support suppresses the effect of work-family conflict on presenteeism for lecturers of accounting higher education working from home (Tantri, Norhamida, & Prasetyo, 2022). Informational support serves as emotional and instrumental aid and also buffers the relationship between work-family conflict and wellbeing among SME remote workers in Lebanon (Zakhem et al., 2022). Social support from work reduces work-home interference

during WFH in China (Wang et al., 2020). A sense of social belonging or social relationships in the organization reduces work-family conflict and burnout in local government employees working from home (Allgood et al., 2022). Supervisor and coworkers support moderated the effect between after-hours work-related technology use and work-family conflict (Andrade & Petiz Lous 2021).

3.1.3 Personal Forces

Self-efficacy significantly reduces work-related stress and WFC for employees working remotely at home for at least 50% of the full-time working hours (Lange & Kayser, 2022). Remote workers' job-related ability to cope negatively moderates the relationship between leader-member exchange and employees' FWC; employees with lower job-related ability to cope had increased FWC (Toscano et al., 2022). Work centrality which is employees' beliefs regarding the importance of work in their self-identity is associated with higher levels of WFC and FWC in the UK and US (Gillet, Huyghebaert-Zouaghi, Austin, Fernet, & Morin, 2022b). Workaholism is positively connected to WFC and work engagement is negatively related to WFC in Italian teachers working from home (Loscalzo, 2021).

The type of dominant needs has different impacts on both work-to-home conflict and home-to-work conflict. Individuals with a higher achievement and affiliation needs scores experienced more work-to-home conflict compared to those with low score on power needs. Individuals with high scores on affiliation needs had more home-to-work conflict than individuals with low score on power needs. Individuals experienced less work-to-home conflict and home-to-work conflict as the power needs increase (Bhattacharya & Mittal, 2020). While a strong adherence to exercise is less beneficial than a weak adherence to exercise for work-from-home employees' vitality when experiencing time-based WFC (Wei, Wu, Park, & Deng, 2022). A stronger compliance with exercise schedule benefits work-from-home employees' vitality (i.e., a sense of feeling energized and alive), when confronted with strain-based WIF (Wei et al., 2022). Moreover, remote workers with higher perceived boundary control were less influenced by work-nonwork conflict than those with lower perceived boundary control (Shi et al., 2023). The preference for segmentation during high job demands increases WFC for employees working from home during COVID-19 (Carruth, 2022).

Literature confirmed that significant gender difference exists in the WFC of teachers working from home in Pakistan; female teachers had higher WFC than male teachers (Shaukat, Bendixen, & Ayub, 2022). Gender differences in work-family interference was not significant in China. 58.76% of female remote workers experienced work-family interference compared to 53.73% of male remote workers. Chinese women did not experience substantially more work-family interference than men because of the multigenerational living arrangements in China, elderly parents supported their adult children in childcare and housework (Sun et al., 2023). Women remote workers were more susceptible to increased WFC, FWC, and worse mental health and wellbeing in Poland and Ukraine (Kusnierz, Rogowska, Chilicka, Pavlova, & Ochnik, 2022). Men in comparison to women experienced lower levels of exhaustion under high levels of work-privacy conflict because women with children who worked from home had more responsibilities for childcare in Germany (Meyer, Zill, Dilba, Gerlach, & Schumann, 2021). Expatriate women faced more work-family conflict than men because of the pressure to combine professional demands with the imposed traditional roles e.g., childcare and home care (Mello & Tomei, 2021).

3.1.4 Spatial Forces

Working at home makes employees more stressed and in conflict; transfers work problems into the family setting than in the traditional office because of the poor conditions of the home workstation dimensions such as space, ergonomics, quality, design, and technology (Rymaniak, Lis, Davidaviciene, Pérez-Pérez, & Martínez-Sánchez, 2021). Physicality interference that involves the workspace and the absence of dedicated workspace during work-from home led to work interference with daily life and vice versa (Sun et al., 2023). The work space in the home during teleworking influences work-family conflict in teleworkers from four Costa Rican public institutions (Solís, 2016). Teleworkers who used a private room for working experienced less WIF and worked less additional hours per week because the exclusive space represents a mechanism to cognitively demarcate the connection (border) between work and family (Solís, 2016). Moreover, vocality interference occurs in both work and family domains and which entails distractions from people speaking (remote workers' work conversations versus family members' conversations), movement sounds, and the volume of devices e.g., television and radio in the household (Sun et al., 2023). Working full time and in a location with interruptions increased work-family conflict during work-from-home (Graham et al., 2021). Work impacting the family domain (WFC) is connected to the challenges of managing the physical space e.g., TV room located close to the workstation and poor adaptation to remote workplace (Mello & Tomei, 2021).

3.1.5 Familial Forces

Family type has significant impacts on both work-to-home conflict and home-to-work conflict. Family type; nuclear, joint, and extended, causes bi-directional interference (Bhattacharya & Mittal, 2020). Having other persons at home while teleworking generates a negative impact on family time and high effects on FIW which could possibly be due to the importance and priority people placed on family and home situations (Solís, 2016). Other family members e-working (e.g., dual earners couple) and children's e-learning accounted for family interference with work (Sun et al., 2023). The presence of children during work-from-home impacts both work-family conflict and family-work conflict, and family-work conflict increased significantly with children present during work-from-home (Graham et al., 2021). The age and degree of autonomy of children impacted the extent of parents' articulation between work and family demands. Parents with younger children experienced a higher family demand than those with older independent children due to home-schooling and childcare. Family related tasks conflicted with work demands for working parents (Sánchez-Mira, Bernardi, Moles-Kalt, & Sabot, 2021). Caring for children under 12 years leads to FWC in university staff in Poland and Ukraine (Kusnierz et al., 2022). Family impact work (FWC) because of interruption of work from children requesting for help with homework and computers and which mixes time for work with personal time or permit family life to meddle with professional life (Mello & Tomei, 2021). Teleworkers in Spain had a low level of work-family conflict, possibly due to a low percentage (20.6%) of 328 participants having caregiving responsibilities (Soubelet-Fagoaga, Arnoso-Martinez, Elgorriaga-Astondoa, & Martínez-Moreno, 2022).

Work-family conflict diminished through increased satisfaction with the division of domestic tasks for home-based teleworkers in Australia (Graham et al., 2021). Teleworkers with more responsibilities undergo higher work-family conflict because just being at home increased conflicts as relatives or friends did not understand that they cannot attend to non-work matters (Solís, 2016). Teleworkers with a higher level of nonwork responsibilities had a higher FIW while teleworkers with a low level of responsibilities outside the work environment had a lower FIW than non-teleworkers (Solís, 2017). Still, separating work and family life which varies by gender and household is a major difficulty facing civil servants teleworking from home. For instance, employees living with children faced interruptions from the family while teleworking (Ortiz-Lozano, Martínez-Morán, & Fernández-Muñoz, 2021). Women without children had lower work-family conflict compared to women with children. Women without children experienced less family-work conflict in comparison to men with children (Graham et al., 2021). Household size has a positive relation with work-life conflict. The presence of children at home increased work-life conflict and employees had more problems in acclimatizing to remote work (van Zoonen et al., 2021). Household size negatively moderates telecommuting's influence on family-to-work conflict such that when household size is large, FWC increases speedily (Golden et al., 2006). In addition, Hoffman (2021) confirmed that teleworking with companion animals and other household members during COVID-19 was not particularly a positive experience due to distractions from dogs and cats during the workday.

3.1.6 Temporal Forces

Temporal interference occurred in both work and family domains, the 'always-on' culture even at evenings and weekends during work-from-home caused work interference with daily life, while daily life interfered with work due to time spent when shopping for groceries because of long queuing time during COVID-19 (Sun et al., 2023). Low self-perceived time pressure is a predictor of FWC in university staff (Kusnierz et al., 2022). Time pressure and amount of responsibility had positively significant associations with full-time remote workers' work-life conflict during the lockdown in Finland (van Zoonen et al., 2021). Conflict between work and family domains occurred as time pressures for parents in Switzerland. Decreased time structuring prompted blurred boundaries between life domains for parents working from home (Sánchez-Mira et al., 2021). Remote workers in Poland were more likely to have a higher level of WFC compared to Ukrainian remote workers because of the perception of low level of time pressure (Kusnierz et al., 2022).

The number of work hours is a substantial predictor of flexibility, permeability, and work-family conflict during telework. Precisely, when working from home, the number of work hours is negatively connected to flexibility in the work domain and positively related to permeability in the home domain and work-family conflict (Leung & Zhang, 2017). The longer (hours) individuals telework, the more the FIW (Solís, 2016). The intensity of telecommuting is positively associated with work-family conflict (Leung & Zhang, 2017). The more individuals telecommute, the lower their WFC and the higher their FWC (Golden et al., 2006). However, increased number of telework days reduced family and work interference because teleworkers became accustomed to organizing

their time, and establishing strategies to limit work-family conflict (Solís, 2016).

3.1.7 Psychological Forces

Work stress is positively and significantly related to work-family conflict for employees working from home (Soubelet-Fagoaga et al., 2022). Stress increases WFC and FWC in administrative staff and academic teachers of universities (Kusnierz et al., 2022). Graduate students and postdoctoral researchers in Canada experienced more stress about new teaching methods during the COVID-19 lockdown, which led to more depressive symptoms and work-to-family interference (Bilodeau, Quesnel-Vallee, Beauregard, & Brault, 2021). Technostress via work-family conflict negatively influences workplace flourishing for academic and support staff of a residential university in South Africa (Harunavamwe & Ward, 2022). Technostress when working from home correlates positively with teachers' work-family conflict in Pakistan (Shaukat et al., 2022). Videoconference fatigue due to the number of hours spent daily on videoconferencing meaningfully predicted work-family conflict. Emotional videoconference fatigue and occupational videoconference fatigue were substantial precursors of work-family conflict (Li, Malviya, & Tandoc Jr., 2022). Technology addiction which is psychological dependency displayed through extreme use accounted for 66% of the variance in technology-family conflict in mobile email users in three North American organizations (Turel, Serenko, & Bontis, 2011).

Recovery which includes psychological detachment, relaxation, mastery, and control has a negative relationship with WFC (Ghislieri et al., 2021). Affective rumination mediates the association between colleagues' norms and employees' levels of FWC while problem-solving pondering and affective rumination mediate the relationship between colleagues' norms and employees' levels of WFC (Gillet et al., 2022a). Pandemic fears had a negative significant effect in predicting family interference with work for information technology (IT) employees working from home in Portugal (De Clercq & Pereira, 2022).

3.1.8 Technological Forces

Technology-enabled remote work causes the blurring of work-family boundaries and intensifies work-life conflict (Ferdous, Desouza, Ali, & French, 2021). A high level of technology-family conflict due to work demands increases work-family conflict for IT experts and administrators (Turel et al., 2011). Bi-directional digitality interference between work and daily life during work-from-home occurred due to the quality and quantity of digital infrastructure and devices e.g., limited internet bandwidth. Family members had to compromise their non-essential digital device usage such as digital television to reduce bandwidth usage so as to accommodate the needs of the remote workers, while remote workers also switch off unnecessary digital devices (Sun et al., 2023).

An increase in techno-overload and techno-invasion levels increases work-family conflict for employees working from home during the COVID-19 pandemic (Rîglea, Rus, & Ratiu, 2021). The use of Information and Communication Technologies (ICTs) in performing work tasks increases flexibility and heightens the permeability of the work-family border and causes techno-invasion; the higher the levels of techno-invasion the higher the levels of work-family conflict (Molino et al., 2020). Telecommuters' frequent use of ICTs at home along with a permeable boundary allowed the penetration of work into the home domain (Leung & Zhang, 2017). Higher levels of technology use magnify work-life conflict (van Zoonen et al., 2021). Perceived stress related to ICTs use for work connectivity has a significantly positive connection with WFC (Ghislieri et al., 2021). Off-work hours technology assisted job demands are positively related to WFC for technical-administrative staff working from home in Italy (Ghislieri et al., 2021). Technology assisted supplemental work when working from home has a direct positive relationship with work-family conflict for IT employees in Pakistan (Usmani & Das, 2022).

3.1.9 The Outcomes of WFC and FWC

WFC and FWC negatively impact mental health (Trócolo, Moretti, & Medrano, 2022). Work-family conflict has a significant negative effect on psychological wellbeing due to stress generated by ICTs overload during work-from-home in Romania (Rîglea et al., 2021). Work-family conflict jeopardizes employee wellbeing during remote work (Zakheim et al., 2022; Carruth, 2022). Work-family conflict was strongly detrimental to Malaysian employees' wellbeing and had a significant positive connection with perceived stress during work-from-home (Al-Jubari et al., 2022). Work interfering with family conflict and family interfering with work conflict had significantly negative relationship with remote workers' mental wellbeing in Australia (Goullet et al., 2022). Work-family conflict has a significant association with wellbeing when working remotely, because the spillover of work into the family domain may cause more severe problems than family interfering with work for remote workers (Carruth, 2022). Home-based remote work impacts private life by causing work-family conflict which

leads to increased work-related stress and job anxiety (Lange & Kayser, 2022). WFC is positively related to anxiety and depression (Kusnierz et al., 2022). WFC and FWC have positive connections with cynicism, anxiety, and depression (Trógolo et al., 2022). Psychological distress increased for Italian teaching-research staff and administrative and support staff working remotely who experienced work-family conflict (Macciotta et al., 2022). Work-family conflict induces distress in adult teleworkers at a Chinese university (Slyke, Lee, Duong, Ma, & Lou, 2022). In cases when individuals had more work-family conflict the previous day, they felt more negative emotions towards the organization the next workday during work-from home in the Netherlands (Darouei & Pluut, 2021).

In addition, work-family conflict and family-work conflict positively predict both remote work and onsite stress and remote work stress intensity was extremely lower than on-site work stress intensity (Chudzicka-Czupala, Żywiołek-Szeja, Paliga, Grabowski, & Krauze, 2023). Work-family conflict mediates the indirect positive relationship between techno-invasion and behavioral stress i.e., when techno-invasion increases, behavioral stress soars through an increase in work-family conflict (Molino et al., 2020). WFC and FWC have positive connections with exhaustion (Trógolo et al., 2022; Wang et al., 2020; Meyer et al., 2021). Remote e-work significantly predicts work-family conflict and concurrently, work-family conflict positively predicts exhaustion (Fernandes, 2022). A high level of conflict between work and family results in high levels of exhaustion for teleworkers (Hoffman, 2021). Work-family conflict positively mediates the relationship between organizational trust in remote e-work and exhaustion (Fernandes, 2022). Work-home interference generates emotional exhaustion in employees working from home during the pandemic (Wang et al., 2020). An increase in work-life conflict increases psychological strain (van Zoonen et al., 2021). Work-family conflict was positively associated with burnout in local government employees in the USA (Allgood et al., 2022). Work interference with family and family interference with work were positively and significantly associated with the three dimensions of burnout; physical fatigue, cognitive weariness, and emotional exhaustion, in teleworkers from various industries in Ecuador (Barriga Medina et al., 2021).

FWC is negatively related to life satisfaction (Kusnierz et al., 2022; Trógolo et al., 2022). Work-home interference was associated with life satisfaction in employees working from home during the pandemic (Wang et al., 2020). Work centrality indirectly impacts family satisfaction through FWC. Reducing employees' work centrality decreases the possibility of WFC and FWC and in turn increases family satisfaction (Gillet et al., 2022b). FWC is significantly and negatively related to remote work satisfaction of employees in private and public organization during COVID-19 (Toscano et al., 2022). Time-based and strain-based WFC impact job satisfaction through employee vitality (Wei et al., 2022). Strain-based WIF impacts job satisfaction through exercise and vitality in work-from-home employees of state-owned organizations in five industries in China (Wei et al., 2022). WFC and FWC mediate the relationship between segmentation preferences with wellbeing and job satisfaction (Carruth, 2022).

Work-family conflict negatively influences workplace flourishing (Harunavamwe & Ward, 2022). Employees working from home during COVID-19 reported struggling with home-to-work interference (HWI) and work-to-home interference (WHI), and which negatively impact work effectiveness (Wang et al., 2020). WFC and FWC mediate the association between remote workers' job conditions and creative performance, that is, generating and evaluating solutions for old, new, and neglected problems. (Wickramasinghe & Nakandala, 2022). Work-family conflict negatively impacts the performance of employees working remotely in SMEs in Lebanon (Zakhem et al., 2022). Work-family conflict mediates the relationship between job demands and control, and the performance of public servants working from home in Indonesia (Nainggolan & Pusparini, 2021). Work-family conflict reduces job performance. While organizational citizenship behavior and happiness suppressed the influence of high work-family conflict to achieve high job performance for telecommuters in Taiwan (Lin, Cheng, & Huang, 2022).

Social support has a full negative moderating role in the relationship between negative home-work interaction and job performance of remote workers (Slavkovic, Sretenovic, & Bugarcic, 2022). Family interfering with work conflict has significantly negative association with productivity (Goullet et al., 2022). Family interference with work is the major cause of decreased productivity during work-from home (Sun et al., 2023). Work-family conflict increases presenteeism (being physically present at work but with decreased productivity or impaired work function due to sickness or unhealthy physical or psychological condition) in academics during work-from-home in Indonesia (Tantri et al., 2022). Negative work-home interaction is negatively associated with work engagement in remote workers of public and private Serbian companies (Slavkovic et al., 2022). When work-from-home employees experienced high levels of work-family conflict in the evening, it results in more emotional exhaustion and less engagement the next workday (Darouei & Pluut, 2021).

4. Discussion

4.1 Theoretical Implications

The work-family roles dynamics theory states that the transition of home-based teleworkers from work (family) roles to family (work) roles is related to or dependent on forces which are organizational, personal, spatial, temporal, psychological, technological, and familial, whereby the forces act as catalysts or inhibitors, and forces from the work system exert influence or pressure in the family system while forces from the family system exert influence or pressure in the work system, thereby activating or suppressing work-to-family conflict and/or family-to-work conflict. The work-family roles dynamics theory explains the patterns of interactions that occur when employees working from home transition between work roles and family roles. Figure two depicts the work-family roles dynamics. The units of the work-family roles dynamics include concepts such as work roles, family roles, work system, family system, transition, home-based teleworker, catalytic forces, inhibitor forces, work-to-family conflict, and family-to-work conflict. Work roles are the requirements and responsibilities facing an individual and also entails behaviors expected of an individual in the work system. Family roles are the requirements and responsibilities facing an individual and behaviors expected of an individual in the family system. Work system is the interconnecting network of co-workers, colleagues, supervisors, management, and clients. Work system is the realm where work roles are executed and where an individual earns a livelihood or the domain of work activities that involves interactions and shared goals with domain members such as co-workers, clients, and supervisor. Family system is the interconnecting network of parents or spouses, children, relatives, and companion animals or the realm where family roles or domestic responsibilities (family time, chores, childcare, leisure, etc.) are performed. Family system is the domain of activities, interactions, shared goals, identity, and dependency, involving domain members such as spouses or partners, children, relatives, companion animals, etc., The work system has unique goals, values, tasks, duties, culture, language, requisite behaviors, and procedures, which are different from those of the family system. The goals, values, culture, and procedures in each system influence the roles an individual plays in the system. Transition means a change in roles with respect to time and environment. Transition refers to shifting from one role to another or crossing the boundary between work (family) roles to family (work) roles.

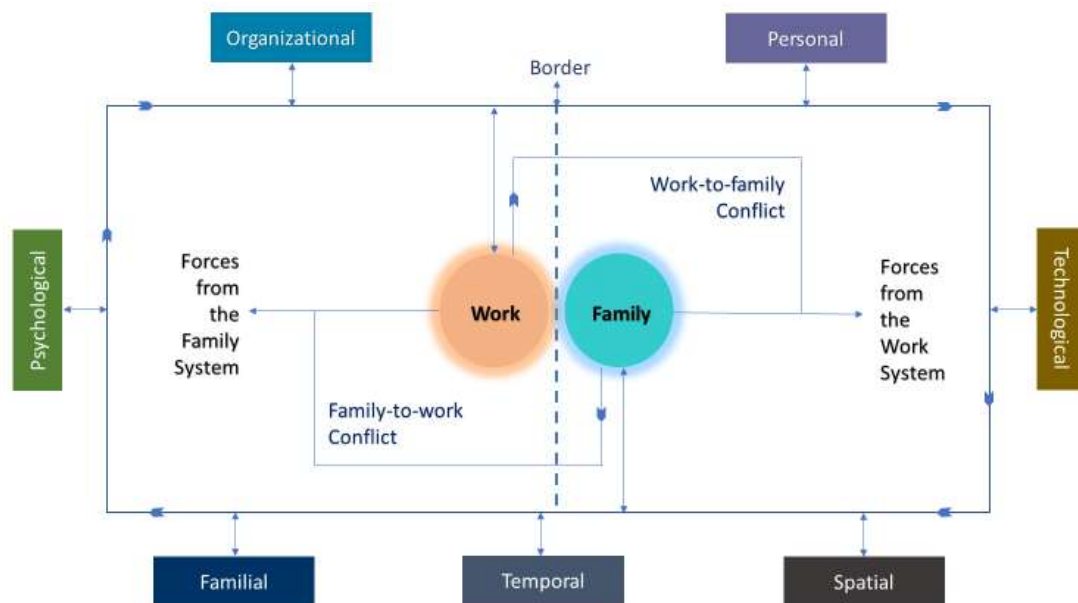


Figure 2. The Work-Family Roles Dynamics

Source: created by the author (Eniola, 2023)

The conditions of the remote work settings make the work system and family system of home-based teleworkers to become intertwined because of blurred spatial and temporal borders. Fonner and Stache (2012), indicated that working from home exacerbates the challenge of delineating a distinct boundary between work and home and which implies more deliberate transitions between work and home roles. In essence, the transition of a home-based teleworker is not the same as the transition of workers going to work on the employer's site. For instance, micro transitions are described as recurring and frequent transitions such as commuting from home to

work and work to home on a regular basis (Ashforth et al., 2000). However, the transition of work-from-home employees do not occur through physical commuting. Yet, work-from-home employees still need to undergo regular micro transitions from work (family) roles to family (work) roles. The transition of home-based teleworkers is psychological, and entails some cues and rites of passage such as using space, technology, communication, etc., in facilitating role exit and role entry, even though teleworkers re-enter the work (family) roles after exiting if work (chores) are not completed. For example, Fonner and Stache (2012) specified that some of the cues used by teleworkers in transitioning include physically leaving the space connected to one role and entering the space associated with another role e.g., leaving home office for the living room, and closing the office door while working to communicate the limit for other household members. Complying with routine work schedules and other family schedules, break times, and close of business time. Getting connected to organizational network and using the organization's technology for work-related activities signify passage, while family routines such as childcare schedule and school routine provide cues for transition. Specifically, the transition of home-based teleworkers includes three components; smoothness, friction, and frequency. A smooth transition implies crossing the border from work (family) roles to family (work) roles without interruption or difficulties. Friction in transition refers to resistance, interruption, and hinderances in crossing the border from one role to another. Frequency in relation to transition refers to the rate of occurrence of border crossing from one role to another or the rate of transitioning from work (roles) to family (work) roles.

A home-based teleworker is an individual who performs work roles in a place other than the employer's location, which in this case is the home of the individual. An employee teleworking from home undergoes micro transitions regularly and the smoothness, friction, and frequency of transitioning of home-based teleworkers between work and family roles depend on forces in the work and family systems. Interference from forces which impede the transition of remote workers may result in pressure and incompatibility with the demands, requirements, expectations, and behaviors connected to the forces from work roles and family roles or work and family systems. Problems or friction with transitions from one role to another indicate (generate) conflict among the demands, requirements, expectations, and behaviors that characterize the forces associated with each role or system. Conversely, a remote worker may experience smooth transition when crossing from one role to another depending on the type of force from both work and family systems. An individual working remotely may experience either incompatibility or compatibility from the demands, requirements, expectations, and behaviors arising from the forces in the work and family systems, that is, work-to-family conflict or family-to-work conflict or no conflict. For instance, teleworking conditions distort the boundaries between work time and family time and generate conflict between work and family (Hoffman, 2021). Work-from-home employees had a higher level of work-family conflict than hybrid workers and those working from the office (Serdaroglu, 2021). Contrariwise, remote workers experienced lower levels of work-family conflict and family-work conflict in comparison to on-site workers (Chudzicka-Czupała et al., 2023).

Forces cause changes to the state of motion (Goc, 2005), likewise, forces cause changes to the transition of home-based teleworkers. The forces are influences that perform two functions; forces either act as a catalyst that speed up the pressure and incompatibility or act as inhibitors that suppress the activities of other forces, or reduce the pressure and incompatibility. Catalytic forces speed up the pressure or incompatibility and cause friction or resistance to the transition from one role to another by working against the intended transition. While inhibitor forces suppress the activities of other forces and enable smooth transition from one role to another. The forces that are associated with the work-family roles dynamics include organizational, personal, spatial, temporal, psychological, technological, and familial. Organizational forces are influences relating to the workplace, organizational activities, organizational members, work duties and responsibilities, and the way work is planned, arranged, and executed. Organizational forces may manifest in form of job conditions, work characteristics, job insecurity, workload or job demands, role ambiguity, job control, autonomy, supervisory monitoring behaviors, work or schedule flexibility, instrumental leadership, organizational support, supervisor support, and coworkers' support. The forces are either a catalytic force or an inhibitor force. The forces either cause friction or smoothness when transitioning from work roles to family roles and trigger either incompatibility (work-to-family conflict) or compatibility due to the demands, requirements, expectations, and behaviors, arising from the organizational forces. For instance, higher levels of workload resulted in higher levels of work-family conflict (Molino et al., 2020), and remote workers had lower work-to-family conflict than hybrid and office workers because of work flexibility (Ağargün & Turgut, 2022).

Personal forces are characteristics associated with an individual which makes the person unique in comparison to others. Personal forces are conditions affecting a person that may not affect others, and they include attributes that make up the person's identity. Some of those confirmed by literature regarding teleworking from home and

work-family conflict include self-efficacy, power needs, affiliation needs, workaholism, work engagement, work centrality, exercise, segmentation preference, gender, and ability to cope. For example, employees with lower job-related ability to cope had increased FWC (Toscano et al., 2022). Spatial forces are conditions in the home-work environment that encompasses the size, physical features, location of the workspace, acoustics, temperature, light, internet bandwidth, etc., Solís (2016) established that the work space in the home during teleworking influences work-family conflict. The level of perceived privacy in the home office is significantly and negatively related to WFC and FWC (Wütschert, Pereira, Egli, Schulze, & Elfering, 2022). Temporal forces are factors relating to time; work hours or telework hours, family time, time pressure, and number of telework days. For instance, employees experienced less time pressure and, in turn, lower levels of work-family conflict on days they worked from home compared to when they worked in the office (Darouei & Pluut, 2021). The number of working hours has more impact on work-to-home conflict i.e., the more the working hours of employees teleworking full time from home the more the conflict or interference from work on private life (Bhattacharya & Mittal, 2020).

Psychological forces are factors relating to the mental and emotional state of an individual. Psychological forces are connected to a person's mind and the way the mind works, and include behavior, thinking pattern, emotions, feelings, and motivations. In the literature regarding work-family conflict and work-from-home, the psychological forces cited include technostress, videoconference fatigue, stress, technology addiction, recovery (psychological detachment, mastery, control, and relaxation), problem-solving pondering, affective rumination, and pandemic fears. For example, stress exacerbates depressive symptoms and work-to-family interference (Bilodeau et al., 2021). Remote workers' ability to psychologically detach from work after work hours had negative effects on family boundary permeability and work-family conflict (Žiedelis, Urbanavičiūtė, & Lazauskaitė-Zabielskė, 2022). Technological forces are features associated with technology or related to technology use or something caused by technology. Some of the established technological forces for home-based teleworking employees according to the work-family literature are technology assisted supplemental work, frequent use of ICTs, techno-overload, and techno-invasion. In the remote work settings, teleworkers' work-to-family conflict and family-to-work conflict are significantly and positively connected to techno-overload and techno-invasion (Leung & Zhang, 2017). Familial forces are conditions affecting or occurring in a family or its members or characteristics relating to a family or its members. The variables of familial forces include family type (nuclear, joint, and extended), presence of children, age and degree of autonomy of children, domestic responsibilities, household size, and companion animals. For example, family type; nuclear, joint, and extended, causes bi-directional interference; work-family interference and family-work interference (Bhattacharya & Mittal, 2020). Besides, technical administrators working from home with care duties regarding children or parents had higher levels of WFC (Ghislieri et al., 2021).

Some specific forces cause work-to-family conflict and family-to-work conflict when they activate behaviors, demands, requirements, and expectations, that generate incompatibility and pressure across domains. Work-to-family conflict occurs when the demands, requirements, expectations, and behaviors associated with the forces from the work system cause pressure and incompatibility with the demands, requirements, expectations, and behaviors connected to the forces from the family system. Family-to-work conflict occurs when the demands, requirements, expectations, and behaviors associated with the forces from the family system cause pressure and incompatibility with the demands, requirements, expectations, and behaviors connected to the forces from the work system. This article suggests that, a familial force such as the age and autonomy of children e.g., children under 12 years, will produce some specific types of behavior, requirements, expectations, and demands in the home-based teleworker compared to another home-based teleworker without children, and which may be incompatible with the behaviors, expectations, requirements, and demands produced from organizational forces such as colleague norms or workload.

This article makes propositions regarding the work-family roles dynamics of home-based teleworkers according to the concepts in the theory. The propositions describe the relationships among the concepts and the expected outcomes of the relationships.

Proposition 1: If there is a change in the demands, requirements, expectations, and behaviors associated with the forces from the work system of a home-based teleworker, then, a change in behaviors, expectations, demands, and requirements, implies a change in the transition of home-based teleworking employees and work-to-family conflict.

Proposition 2: If there is a change in the demands, requirements, expectations, and behaviors associated with the forces from the family system of a home-based teleworker, then, a change in behaviors, expectations, demands, and requirements, implies a change in the transition of home-based teleworking employees and family-to-work

conflict.

Proposition 3: If the smoothness of transition of home-based teleworkers is negatively associated with work-to-family conflict and family-to-work conflict, then, work-to-family conflict and family-to-work conflict will reduce as a result of the increase in the smoothness of the transition.

Proposition 4: If the friction in transition of home-based teleworkers is positively associated with work-to-family conflict and family-to-work conflict, then, work-to-family conflict and family-to-work conflict will increase as a result of the increase in the friction in the transition.

Proposition 5: If the frequency of transition of home-based teleworkers is negatively associated with work-to-family conflict and family-to-work conflict, then, work-to-family conflict and family-to-work conflict will reduce as a result of the increase in the frequency of transition.

The dynamics of a physical system involve the causes of the changes in the system or why the system slows down or maintains its speed, or changes its direction (Goc, 2005). Likewise, the work-family roles dynamics of a remote worker involves the causes of changes in the work and family systems, why the transition from work (family) roles to family (work) roles is hindered, or why the transition from work (family) roles to family (work) roles is smooth. Forces cause an object to change direction. The movement of an object at rest depends on forces, and a moving object needs a force to change its velocity (Chen, 2004). Similarly, forces cause changes in the work-family dynamics of a home-based teleworker. Forces determine the direction of the conflict and cause changes in the direction of (existing) conflict. The operation of forces in the work and family systems determines the transition of home-based teleworkers from work (family) roles to family (work) roles. Forces control the smoothness or friction in the transition of the home-based teleworker from work roles to family roles and vice versa.

The forces causing changes in the work and family systems are the organizational, personal, spatial, temporal, psychological, technological, and familial forces. As exemplified by Newton's first law of motion, if there is no net force on an object, then the object will continue in its state of rest or of constant velocity (Chen, 2004). Essentially, during work-from-home if some of the forces in the work and family systems cease to exert influence or pressure, there would be smooth transition from one role to another, and the incompatibility between work (family) roles and family (work) roles will diminish. Moreover, some forces are required to aid the transition of home-based teleworkers from work (family) roles to family (work) roles. They are regarded as inhibitors. Organizational forces such as autonomy, supervisory monitoring behaviors, instrumental leadership, organizational support, supervisor and coworkers' support play the roles of inhibitors. For example, autonomy decreases WFC for employees working from home as well as hybrid workers (Serdaroglu, 2021). Scheduling flexibility positively moderates telecommuting's effect on work-to-family conflict such that when scheduling flexibility is high, WFC decreases quickly (Golden et al., 2006). Personal forces such as the ability to cope, self-efficacy, exercise and so on act to suppress the activities of other forces. Spatial forces that include having a dedicated private work space support smooth transition from one role to another. Familial forces e.g., flexibility at home has a negative association with family-to-work conflict for teleworkers (Leung & Zhang, 2017). On the other hand, catalytic forces such as workload, job demands, dependent children, large household size, lack of dedicated private workspace, technology addiction, technology assisted supplemental work, poor recovery (psychological detachment), stress, technostress, time pressure, women with children, etc., cause friction in transitioning from one role to another and thereby increase the extent of pressure or incompatibility.

The transition of home-based teleworkers from work (family) roles to family (work) roles equals the valence of forces from the work and family systems. This law of interaction in the work-family roles dynamics is synonymous to Newton's second law of motion, that states that the acceleration or rate of change of momentum of a body is equal or proportional to the net force acting on it (Zakrzewski, n.d; Goc, 2005). Valence is the degree of combining power of an element (Merriam-Webster, n.d), valence means power which could be high or low and positive or negative. The valence of the catalytic and inhibitor forces could range from very low, low, medium, high, and very high. For instance, the level of an employee's (reportee) autonomy varies in comparison to that of another employee with managerial responsibilities, an employee's workload could be high while another employee has a medium workload, the support received could also differ in varying degrees, and a mother with one child is different from a mother with six dependent children. Hence, the smoothness or friction with the transition of home-based teleworkers from work (family) roles to family (work) roles is equal to the level of influence and the valence of forces from the work and family systems. The transition between borders or roles depends on the type of force (catalytic and inhibitors) and valence of the forces in the work and family systems. The valence of the forces varies according to individual perception and other contextual factors.

Therefore, the changes occurring in the work-family roles dynamics are outcomes of the influence and valence of forces from the work and family systems. The changes are either work-to-family conflict and/or family-to-work conflict.

Proposition 6: If a change in forces alters the transition of home-based teleworkers, then, a change in the forces implies a change in transition from work (family) roles to family (work) roles, and a change in work-to-family conflict and family-to-work conflict.

Proposition 7: If forces acting as catalysts are positively associated with the transition of home-based teleworkers, then, friction in the transition from work (family) roles to family (work) roles and work-to-family conflict and family-to work conflict will increase as a result of increase in the catalytic forces.

Proposition 8: If forces acting as inhibitors are positively associated with the transition of home-based teleworkers, then, smoothness in the transition from work (family) roles to family (work) roles will increase and work-to-family conflict and family-to-work conflict will decrease as a result of the increase in the inhibitor forces.

Proposition 9: If the valence of forces is positively associated with the changes in transition from work (family) roles to family (work) roles, then, the changes in transition (friction or smoothness) will increase as a result of the increase in the valence of the forces, and changes in work-to-family conflict and family-to-work conflict will increase.

The work-family roles dynamics model provides knowledge about teleworking from home and work-family conflict and helps home-based teleworkers, employers, managers, understand and address the complex interactions and problems regarding the transition between work (family) roles to family (work) roles. The ideas from the work-family roles dynamics are useful for informed decision-making regarding the pressure and incompatibility between the demands, requirements, expectations, and behaviors arising from forces within the work system versus the family system. The work-family roles dynamics model provides the understanding about what and how to act regarding work-to-family conflict and family-to-work conflict when employees are teleworking from home. Particularly, the forces operating in the work and family systems are what remote workers need to identify, which of them are active, where do they originate from, in what direction are they moving? What kind of conflict is occurring? Which of the forces is responsible for the conflict? What are the valences of the forces? What are the necessary actions required to stop the conflict or decrease/increase the valence of the forces? The actions required in stopping conflict or decreasing/increasing the valence of forces require dealing with the relevant forces in the work and family systems. In physical sciences, the motion of an object that is at rest is triggered by a force and also stopping motion or changing the direction of an object in motion requires applying a force (Chen, 2004; Zakrzewski, n.d). Similarly, reducing friction inhibiting the transition of remote workers from one role to another requires applying the right type of force i.e., pushing out or activating a different force that will subdue the one causing the friction or pulling back (cutting down) some active forces. For example, the friction that impedes role transition can be reduced by activating the inhibitor forces; self-efficacy, job autonomy, job control, etc., and pulling back could include cutting down catalytic forces such as after work hours technology use, reducing 'always on' culture, rearrangement of the home work space and reducing nonwork or work responsibilities, etc., According to Sánchez-Mira et al. (2021), parents working from home made more adjustments to decrease work-family conflict by reducing working hours, working around children's needs, and mostly resorting to informal support.

Proposition 10: If taking actions about forces alter the transition of home-based teleworkers, then, a change in the transition of home-based teleworkers implies a change in work-to-family conflict and family-to-work conflict.

Proposition 11: If a change in work roles alters the forces (catalytic and inhibitor forces), then, a change in work roles implies a change in transition (friction or smoothness) and work-to-family conflict.

Proposition 12: If a change in family roles alters the forces (catalytic and inhibitor forces), then, a change in family roles implies a change in transition (friction or smoothness) and family-to-work conflict.

Forces from the work system exert influence on the family system to activate work-to-family conflict while forces from the family system exert influence on the work system to activate family-to-work conflict. The impact of forces is bi-directional, forces from the work system interfere with the family system while forces from the family system interfere with the work system. However, in some instances, a force originating from the work system can also impact the work system. Although previous research has demonstrated that contextual factors interplaying with work and family are domain specific (Golden et al., 2006). Nevertheless, this article confirms

that not all contextual factors impacting work and family spheres are domain specific. The same contextual factors sometimes impact both work and family domains. For instance, organizational factors such as work characteristics and technical support exert influence in both directions, and caused both work interference with family and family interference with work (Wickramasinghe & Nakandala, 2022). Household size causes both work-life conflict (van Zoonen et al., 2021) and family-work conflict (Golden et al., 2006). Affiliation needs is one of the personal contextual factors causing bi-directional interference in work and family life. Affiliation is a predictor of both work-to-home conflict and home-to-work conflict because of the need to maintain social relationships and bonds in both domains (Bhattacharya & Mittal, 2020). Other contextual factors that are not domain specific include gender, number, age, and autonomy of children, etc., (Kusnierz, et al., 2022; Graham et al., 2021). Appendix A provides an overview of the findings from extant literature regarding contextual factors and the domain impacted; the forces either decrease or increase conflict in each domain or both domains.

In addition, the outcomes of the interference are also bi-directional, work-to-family conflict produces outcomes in both work and family systems and family-to-work conflict produces outcomes in both family and work systems. Besides, a force is an influence which could be a push or pull (Chen, 2004; Zakrzewski, n.d). Work-to-family conflict and family-to-work conflict push and pull on the work system and family system. When work-to-family conflict produces an outcome in the family system, there is a 'push effect' and also when family-to-work conflict produces an outcome in the work system, there is a 'push effect' However, in some cases, work-to-family conflict may produce an outcome in the work system and family-to-work conflict may produce an outcome in the family system, thus, generating a 'pull effect'. This review found evidence that conflict generates outcomes not only in the receiving domain of the conflict but also in the domain where the conflict originates. Even though, authors have argued that antecedents and outcomes are domain specific for the bi-directional conflict (WFC and FWC), that the precursors are from the originating sphere of the conflict (e.g., work) while the outcomes exist in the receiving sphere (e.g., family). For example, work-to-family conflict would only predict family distress and that family-to-work conflict would only predict work distress. Family-to-work conflict impacts work behaviors and behavioral intention or work performance while work-to-family conflict impacts family behaviors and behavioral intention or family performance (Frone, Yardley, & Markel, 1997). However, this article found evidence that the outcomes of conflict are not limited to the receiving domain of the interference. Work-to-family conflict and family-to-work conflict generate outcomes in both work and family domains. For example, both FWC and WFC impact wellbeing (Carruth, 2022), and wellbeing as an outcome influences work and family. Also, techno-invasion because of work leads to work-family conflict which stirs up behavioral stress, while behavioral stress encompasses eating disorder, lack of initiative, and lack of energy to socialize (Molino et al., 2020), and these symptoms have effects in both work and family domains. Work-family conflict and family-work conflict impact both family satisfaction and job satisfaction (Gillet et al., 2022b; Carruth, 2022; Toscano et al., 2022). Time-based FIW is positively related to family satisfaction (Lapierre et al., 2008). Strain-based WIF relates more strongly to job satisfaction than to family dissatisfaction, and that strain-based FIW relates more strongly to family dissatisfaction than to job dissatisfaction (Lapierre et al., 2008).

Proposition 13: If a change in forces alters work-to-family conflict and family-to-work conflict, then, a change in work-to-family conflict and family-to-work conflict implies a change in the outcomes in both work and family systems.

Proposition 14: If catalytic forces are positively associated with work-to-family conflict and family-to-work conflict, then, the greater the work-to-family conflict and family-to-work conflict when catalytic forces increase and the lower the work-to-family conflict and family-to-work conflict when catalytic forces decrease.

Proposition 15: If inhibitor forces are negatively associated with work-to-family conflict and family-to-work conflict, then, the lesser the work-to-family conflict and family-to-work conflict when inhibitor forces increase and the higher the work-to-family conflict and family-to-work conflict when inhibitor forces decrease.

This article points to some of the empirical indicators of the concepts as a way of extending the propositions, because a description of the results indicators provides understanding about the expected outcomes (Swanson & Chermack, 2013). For example, the value of an organizational force, workload could be measured with the work intensity scale (Melin, Astvik, & Bernhard-Oettel, 2014). One of the personal forces, segmentation preference could be measured by items adapted by Carruth (2022). Spatial forces can be measured according to the operationalization of the physical environment factors that include ergonomics, temperature, air quality, noise level, and ambient lightning (Duque et al., 2020). Technological forces such as techno-overload, techno-invasion and techno-complexity could be measured by the technostress creators scale (T. Ragu-Nathan, Tarafdar, B. Ragu-Nathan, & Tu, 2008; Tarafdar, Tu, B. Ragu-Nathan, & T. Ragu-Nathan, 2007). A familial force, household

size could be measured with an instrument that enables the calculation of all individuals living in the household. Temporal forces could be assessed with suitable instruments that measure the number of telework days and hours, intensity of teleworking, and time pressure. A psychological force, stress could be measured based on the perceived stress scale (Cohen, Kamarck, & Mermelstein, 1983). The value of work-to-family conflict and family-to-work conflict will be measured based on a scale developed to incorporate the demands, requirements, expectations, and behaviors from the forces from both work and family roles. Home-based teleworking could be evaluated by an instrument that measures if an individual is performing their work from home by using ICTs. The value of transition could be measured by developing instruments that capture the three variables; smoothness, friction, and frequency. Instruments could be developed to ascertain the expectations, requirements, demands, and behaviors associated with the forces from both work roles and family roles. The valence of the forces could be measured based on the degree of their power or influence from very low, low, medium, high, to very high. A desirable outcome such as job satisfaction could be evaluated by the job satisfaction scale by Carruth (2022). An undesirable outcome such as burnout could be evaluated based on the Maslach Burnout Inventory (Maslach & Jackson, 1981).

4.2 Implications for Human Resource Management

The management of forces from work and family systems is requisite for smooth transition from work roles to family roles and vice versa. Organizational leaders, human resource practitioners, and home-based teleworkers have the responsibilities of managing both catalytic forces and inhibitor forces. Precisely, enabling inhibitor forces will suppress the activities of the catalytic forces in the work and family systems of home-based teleworkers, and will facilitate smooth transition and thereby reduce the bidirectional conflict. For instance, activating inhibitor forces could include providing a family-supportive work environment which reduces work-family incompatibilities and consequently improves life satisfaction (Lapierre et al., 2008). Increasing job resources such as job autonomy, schedule control, and challenging work will decrease WFC (Schieman & Young, 2013). Providing more emotional support will lessen depressive symptoms and family-to-work interference (Bilodeau et al., 2021). While catalytic forces such as family demands could be attenuated by establishing time structure and routines in work time so as to reduce conflict (Sánchez-Mira et al., 2021). Moreover, assessment of the demands, requirements, expectations, and behaviors associated with the catalytic forces would help in undertaking necessary actions that will reduce friction with transition and conflict across domains.

In addition, training and developmental activities may help alleviate work-to-family conflict and family-to-work conflict. For instance, Dutch participants who participated in an online intervention targeted at regulating internal and external demands and resources through self-recognition, job crafting, work-family management, and recovery, reported lower work-family conflict (Demerouti, 2023). Besides, the knowledge from training and developmental activities given in the workplace are transferrable. Hill et al. (2007) indicated that what employees learn at work could help them have a better home, that is, skills training and educational opportunities might assist employees in their home life e.g., communication skills taught in the workplace may likely help employees in communicating more effectively with their family. In sum, providing employees with conducive and sustainable working conditions will decrease work-to-family conflict and family-to-work conflict and indirectly promote wellbeing, and organizations that include wellbeing in their models at the level of individuals, teams or the entire organization will achieve high results (Guziak & Gronert, 2020).

4.3 Conclusion

Home-based teleworkers perform roles in both work and family systems, work roles have unique characteristics in comparison to family roles, and the work system's goals are different from those of the family system. During home-based teleworking, performing roles in both work and family systems require crossing the border from one role to another or transitioning from one role to another role. The transitioning of home-based teleworkers depends on forces which are organizational, personal, spatial, familial, technological, psychological, and temporal. These forces could either act as catalysts or inhibitors during the transition from work (family) roles to family (work) roles, thus making home-based teleworkers to experience friction or smoothness in their transition which could lead to either work-to-family conflict and/or family-to-work conflict or absence of conflict. Moreover, the catalytic forces generate demands, requirements, expectations, and behaviors that cause pressure or incompatibility across the work-family systems. The valence of forces and type of forces are important determinants of the level of the bi-directional inter-role conflict, the presence or absence of conflict, and the outcomes of the conflict, as they either impede transition or facilitate transition from work (family) roles to family (work) roles during home-based teleworking.

4.4 Recommendations for Future Research

This article has provided new knowledge and propositions which require exploration and this article also suggests the following questions for further research; how does the valence of forces impact the transition (smoothness and friction) from work (family) roles to family (work) roles? How does changes in the forces impact transition from one role to another? What are the effects of the catalytic and inhibitor forces on the transition from work (family) roles to family (work) roles? What are the direct and indirect effects of catalytic and inhibitor forces on work-to-family conflict and family-to-work conflict? How often do home-based teleworkers cross the border from one role to another daily? What are the effects of the frequency of transition from one role to another on work-to-family conflict and family-to-work conflict? How does changes in work roles and family roles impact catalytic and inhibitor forces and work-to-family conflict and family-to-work conflict?

4.5 Limitation of the Study

The variables of the forces discussed in this article were based on the literature reviewed, however, the variables of the organizational, personal, spatial, psychological, familial, technological, and temporal forces may not be limited to the ones identified in this study. There could be more variables under each category of forces.

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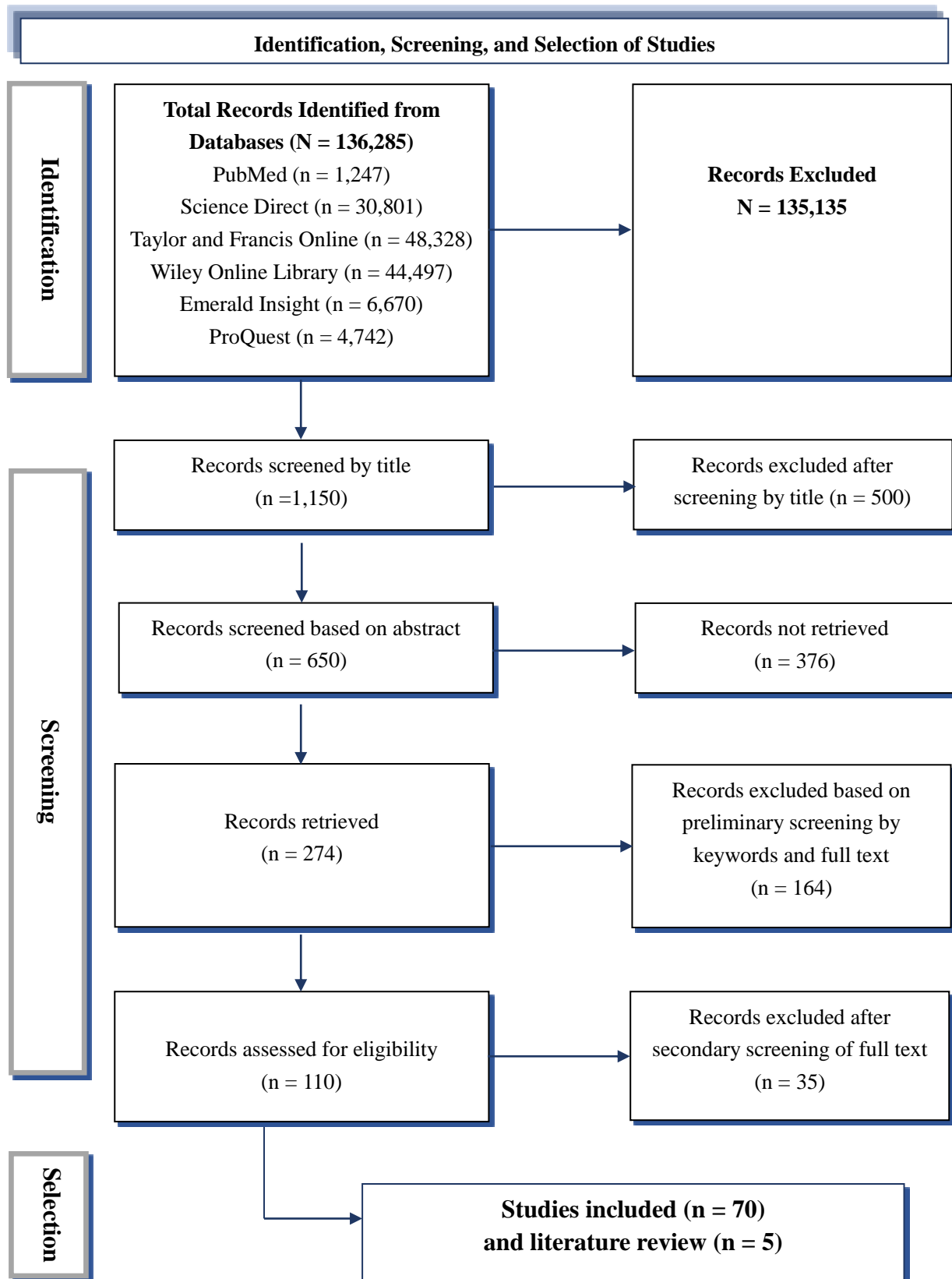
Appendix A

The Antecedents, Direction of Conflict, and the Outcomes

No	Forces	FWC	WFC and FWC	FWC
1	Organizational	Job Insecurity; Workplace Pressure; Workload or Job Demands; Role Ambiguity; Monitoring; Job Control; Autonomy; Supervisory Monitoring Behaviors; Instrumental Leadership; Organizational Trust; Organizational Support; Informational Support; Supervisor and Coworkers' Support	Job Conditions; Work Characteristics, Technical Support, and Work Environment. Colleagues' Norms; Flexible Work Schedules	Frequent Interactions with Supervisor; Leader-Member Exchange (LMX)
2	Personal	Self-Efficacy; Workaholism; Work Engagement; Exercise; Segmentation Preference	Work Centrality; Affiliation Needs; Power Needs; Gender	Ability to Cope
3	Spatial	Space; Ergonomics; Technology	Privacy; Interference; Interference	Physicality Vocality -
4	Familial	-	Family Type (Nuclear, Joint, and Extended); Presence of Children	Other Family Members; Age and Degree of Autonomy of Children e.g., Caring for Children under 12 years; Domestic Responsibilities; Gender cum Children; Household Size; Companion Animals
5	Temporal	-	Time Pressure; Number of Telework Days; Telework Hours	-
6	Psychological	Technostress; Videoconference Fatigue; Technology Addiction; Recovery (Psychological Detachment, Relaxation, Mastery, and Control); Problem-Solving Pondering	Stress; Affective Rumination	Pandemic Fears
7	Technological	Technology-Family Conflict	Digitality Interference e.g., Limited Internet Bandwidth; Techno-Overload; Techno-Invasion	Technology Assisted Supplemental Work; Frequent use of ICTs
Outcomes		Psychological Distress; Negative Emotions toward Organization; Behavioral Stress; Psychological Strain; Flourishing; Presenteeism; Work Engagement	Mental Wellbeing; Cynicism; Anxiety; Depression; Stress; Exhaustion; Burnout; Life Satisfaction; Family Satisfaction; Job Satisfaction; Work Effectiveness; Creative Performance	Decreased Productivity

Appendix B

The Literature Search Process



Appendix C

Teleworking and work-family conflict studies

No	Author & Year	Methodology & Design	Sample	Demographics & Population	Location
1	Andrade & Petiz Lous ã (2021)	Quantitative: Survey	212: 42.5% worked in public institutions and 45.3% in private institutions.	71.7% female; ages between 18-64 years; Mage = 37.35 (SD = 11.68); and 52.8% were parents.	Portugal
2	De Clercq & Pereira (2022)	Quantitative: Survey	124 from IT consulting sector.	44% were women; 22% had more than 5 years organizational tenure.	Portugal
3	Barriga Medina et al. (2021)	Quantitative: Survey	1,044: 30.8% teleworked more than 8 h/day and 69.2% teleworked 8 h or less a day.	45% male and 55% female; 60.6% single and 27.1% married; 60.2% were millennials.	Ecuador
4	Trógolo et al. (2022)	Quantitative: Cross-sectional study using random telephone survey.	1,049: 19.8% worked from home with a flexible schedule and 13.6% worked from home with fixed schedules.	51% male; mean age = 42.15 (SD=12.61); 44.5% had university or postgraduate educational level.	Argentina
5	Wütschert et al. (2022)	Quantitative: Cross-sectional online survey.	287 employees teleworking a minimum of 1-2 days per week from home.	Ages between 18 to 65 years; 65% female and 35% male; 39% were married and 17% were single.	Switzerland
6	Meyer et al. (2021)	Quantitative: Longitudinal study- three-wave data collection for three months.	2,900 in wave 1 and 1,237 in wave 2, and 789 participated in all three waves.	Wave three data: 69.20% female and 30.04% male; average age was 41.94 years (SD = 11.38).	Germany
7	Rymaniak et al. (2021)	Quantitative: Online and email surveys from April to July 2020.	1,599 home-based teleworkers: 680 Polish, 435 Lithuanians, and 484 Spanish.	NS	Multi-Country
8	Agbakwuru & Ejakpovi (2022)	Quantitative: Online survey.	101 full-time and part-time employees.	43.6% male and 56.4% female; 86.1% were single and 13.9% were married.	Ireland
9	Slavkovic et al. (2022)	Quantitative: Survey - web-based questionnaire.	226 teleworking employees in diverse sectors.	57% female and 43% male; 46% were 31-40 years.	Serbia
10	Wei et al. (2022)	Quantitative: Survey data collected in two waves (Time 1 and 2).	Time 1: 248 and Time 2: 243 Final sample: 243	48.3% female; average age was 34.08 years (SD = 7.30); 68.7% were married.	China
11	Žiedelis et al. (2022)	Quantitative: Longitudinal two-wave study.	Wave 1: 375 and Wave 2: 235: Wave 1 data - 81.3% worked from home for an average of 4.3 days/week.	Based on Wave 1 Data: 286 were women and 89 were men.	Switzerland & Lithuania
12	Hoffman (2021)	Quantitative: Online survey	454	231 were females; ages from 19-72 years (M = 41.3, SD = 11.5).	USA

13	Bhattacharya & Mittal (2020)	Quantitative: A 2-stage survey.	200 individuals who teleworked for more than two days a week.	54% male and 46% female.	India
14	van Zoonen et al. (2021)	Quantitative: Survey	2,242	74.4% female and 24.4% male; average age was 45.6 years (SD = 10.5).	Finland
15	Sánchez-Mira et al. (2021)	Qualitative: Interviews-data from the fourth wave of a longitudinal study.	26 parents including 21 lone parents. 11 in home-based work and 4 in home-based + onsite work.	24 mothers and two fathers; 27 of 37 children between 10-16 years.	Switzerland
16	Ortiz-Lozano et al. (2021)	Quantitative: Survey	438 records or sample analyzed.	NS	Spain
17	Molino et al. (2020)	Quantitative: Survey - self-report online questionnaire.	Study 1: 878 and Study 2: 749 who worked remotely at least 2 days per week.	Study 2 data: 58.5% female and 41.3% males; mean age was 38.66 years (SD = 11.25).	Italy
18	Macciotta et al. (2022)	Quantitative: Online survey	11,523: 9,364 students and 2,159 employees from five Italian universities; 47.5% teaching-research staff and 52.5% administrative and support staff.	Employees' average age = 48.87 years (SD = 10.28); 37.2% male and 62.8% female. Students' average age = 22.85 years (SD = 4.03); 31.7% male and 68.3% female.	Italy
19	Mello & Tomei (2021)	Qualitative: Descriptive-analytical research; telephone interviews.	12 Expatriate Managers; four in the UK, one in Brazil, one in France, one in Kuwait, one in Argentina, one in the Netherlands, and three in the US.	Six males and six females; ages between 32-56 years; family size between 1-6 individuals.	Multi-Country
20	Toscano et al. (2022)	Quantitative: Cross-sectional study	455 employees of public and private organization.	67.7% females; 27.4% between 26-35 years and 26.9% between 46-55 years.	Online
21	Bilodeau et al. (2021)	Quantitative: Cross-sectional study	1,790 graduate students and postdoctoral researchers from three universities.	1,185 women and 605 men; women's mean age was 28.55 (SD= 0.20); men's mean age was 29.27 (SD = 0.31).	Canada
22	Lin et al. (2022)	Quantitative: Survey	295 Telecommuters	54.92% male and 45.08% female; 25.76% were single and 74.24% were married.	Taiwan
23	Ağargün & Turgut (2022)	Quantitative: Online survey	245: 43% remote workers and 41% hybrid workers.	43% female and 57% male; mean age was 34.33 years (SD = 7.5).	Turkey
24	Slyke et al. (2022)	Quantitative: Survey	329: 28.5% teleworked prior to COVID-19.	49.5% female and 50.5% male; average age was 32.8 (SD = 5.2).	China
25	Tantri et al. (2022)	Quantitative: Survey	68 Accounting Lecturers	38% male and 62% female; 88% were married and 12% were single.	Indonesia
26	Goullet et al. (2022)	Quantitative: Survey	340	50% female, 47.1% male,	Australia

					and 2.90% non-binary.	
27	Serdaroglu (2021)	Quantitative: Survey		301: 30.57% worked from home, 34.88% worked from office, and 34.55% were hybrid workers.	33.22% male and 66.8% female; ages between 18-65 years, M = 40.10 (SD = 8.25).	Romania
28	R ęlea et al. (2021)	Quantitative: Online survey	217		54.8% women and 45.2% men; ages between 21-56 years (M = 33.15; SD = 8.46).	Romania
29	Allgood et al. (2022)	Quantitative: Cross-sectional survey	124		50.8% women; average tenure was 8.24 years (SD = 7.17).	USA
30	Nainggolan & Pusparini (2021)	Quantitative: Online survey	400	public servants of Indonesia Ministry of Finance.	Participants had children under 12 years and had worked a minimum of 1 year in the current position.	Indonesia
31	Sun et al. (2023)	Mixed-Methods: Quantitative (survey) and Qualitative (interviews).	602 survey respondents and 36 interview participants.		Survey respondents: 59.47% female and 40.53% male. Interview participants: 16 women and 20 men.	China
32	Al-Jubari et al. (2022)	Quantitative: Online survey	184	employees of various organizations.	44% male and 56% female; 44% were between 26-33 years.	Malaysia
33	Carruth (2022)	Quantitative: Survey	126	remote workers.	78% female and 22% male; mean age was 39.34.	Spain
34	Usmani & Das (2022)	Quantitative: Survey	300	employees of IT Companies.	170 males and 130 females.	Pakistan
35	Wang et al. (2020)	Mixed-Methods: Qualitative explorative study using semi-structured interviews and quantitative empirical study via survey.	39 Interviewees and 522 survey respondents. Survey participants had worked from home for an average of 21.25 days (SD = 17.25) at the time of the study.		Interviewees: 23 women; average age was 32.62 years (SD = 9.43); Survey respondents: 51.9% female; average age was 31.67 years (SD = 6.09).	China
36	Loscalzo (2021)	Quantitative: Survey	587	Teachers	94.5% female; ages between 24-67 years (M = 48.80, SD = 9.17); 61.2% were married.	Italy
37	Darouei & Pluut (2021)	Quantitative: Three daily web-based surveys; morning, afternoon and evening for two consecutive workweeks.	34	professional workers (in the legal sector, academia, and IT) and 24 partners.	68% women; mean age was 33 years; average work hours was 38 h/week and worked from home 2.7 days/week on average.	The Netherlands
38	Chudzicka-Czupała et al. (2023)	Quantitative: Survey	946	individuals in IT, teaching, consulting, telecommunication, restaurant business, etc., 51.4% worked remotely and 48.6% on-site.	Total population: 81% women and 19% men. Remote workers (487): 78.4% women and 21.6% men; average age was 31 years.	Poland
39	Shaukat et al.	Quantitative:	292	teacher educators.	51.7% male and 48.3%	Pakistan

	(2022)	Cross-sectional design			female.	
40	Zakhem et al. (2022)	Quantitative: Survey		198 workers in SMEs: real estate, insurance, financial, and education sectors.	53% males and 47% females; average age was 35.2 years (SD = 5.5).	Lebanon
41	Harunavamwe & Ward (2022)	Quantitative: survey	Online	227: 62% university academics and 38% support staff.	68% female; 38% between 31-40 years and 6% were > 60 years.	South Africa
42	Ghislieri et al. (2021)	Quantitative: Cross-sectional study		211 technical-administrative staff in a health company.	74% were women; mean age was 53.28 years (SD = 6.66).	Italy
43	Gillet et al. (2022a)	Quantitative: survey	Online	442: 158 onsite workers and 284 remote workers. 81.0% lived and worked in the British Isles and 19.0% in the USA.	56.6% were females; 94.1% held a bachelor's degree; mean age was 39.52 years (SD = 10.38).	British Isles & USA
44	Gillet et al. (2022b)	Quantitative: survey	Online	432: 152 worked onsite and 280 worked remotely; 74.3% from the UK and 25.7% from the USA.	54.6% females; 94.9% held a bachelor's degree; mean age was 40.06 years (SD = 10.44).	UK & USA
45	Soubelet-Fagoaga et al. (2022)	Quantitative: Survey		328: 53.35% were teleworking and 46.65% were working face-to-face.	54.6% were women; mean age was 43.48 years (SD = 10.07); 20.6% had caregiving responsibilities.	Spain
46	Lange & Kayser (2022)	Quantitative: Cross-sectional survey		5,163	53.1% female and 46.9% male.	Germany
47	Kusnierz et al. (2022)	Quantitative: Cross-sectional study using an online survey.		736 administrative staff and academic teachers of universities in Poland (53.26%) and Ukraine (46.74%); 72.02% worked remotely.	66.03% were women; ages between 19-72 years (M = 39.40; SD = 10.80).	Poland & Ukraine
48	Shi et al. (2023)	Quantitative: A two-wave survey with one month interval between waves.		Time 1: 521 and Time 2: 461 usable questionnaires.	Time 2 data: 280 females and 181 males; average age was 30.08 years (SD = 6.06).	China
49	Jaafar & Rahim (2022)	Quantitative: Survey		155 employees in Klang Valley.	56.8% females and 43.2% males; 53.5% were married and 43.9% were single.	Malaysia
50	Graham et al. (2021)	Quantitative: Cross-sectional data from the Australian Mixed-Methods Employees Working at Home (EWAH) study.		658 Australian residents working from home at least 2 days per week.	499 females and 159 males; ages between 36 and 55 years; 64 males with children and 155 females with children.	Australia
51	Li et al. (2022)	Quantitative: nationwide survey	Online	590 Singapore residents.	277 females; average age was 41.9 years (SD = 11.88).	Singapore
52	Fernandes (2022)	Quantitative: survey	Online	146 from various geographical locations; 80.8% Portuguese and located in Portugal.	69.9% female and 30.1% male; 84.2% between 18-25 years.	Portugal
53	Wickramasinghe & Nakandala (2022)	Quantitative: survey	Online	380 white-collar or professionals with permanent	53% females and 47% males; 40% were married	Sri Lanka

				full-time jobs in private sector organizations.	with children, 18% were married without children, and 42% were single.	
Pre-COVID-19 RW and WFC						
54	Solis (2016)	Quantitative: (web-based questionnaire).	Survey	142 teleworkers in four public institutions.	Average age was 41.60 (SD = 8.31).	Costa Rica
55	Solis (2017)	Quantitative: Self-administered questionnaire.		164: 92 teleworkers, 72 non-teleworkers, and in addition 33 supervisors were included.	For 164: Average age was 41.13 (SD = 8.42).	Costa Rica
56	Duxbury et al. (1998)	Longitudinal Mixed-Methods Experimental Design (qualitative and quantitative).	Design and	Data from three Canadian organizations: 54 teleworkers with an average telework hours/week of 14.7 (SD = 11.11); 26 managers of teleworkers, 22 coworkers of teleworkers, and 36 employees in the control group.	Teleworkers: 64% male; 47.2% had a university degree. Control Group: 80% male; 48.6% had a university degree. Co-workers: 42.9% male; 19.1% had a university degree. Managers: 87.5% male; 78% had a university degree.	Canada
57	Leung & Zhang (2017)	Quantitative: Telephone survey using Computer-Assisted Telephone Interviewing (CATI) system.	Telephone using	509 information workers.	47.3% male; median age was 40-49 years; 34.9% were high school graduates or below.	Hong Kong
58	Kiburz (2016)	Longitudinal: Quantitative - Electronic survey.		Eligible responses at Time 1 were 253 and at Time 2 were 151.	35.3% females and 64.7% males; mean age was 28.45 (SD = 10.08).	USA
59	Ongaki (2019)	Quantitative: survey	Online	237	133 males and 104 females.	USA
60	Lautsch et al. (2009)	Mixed-Methods: Quantitative and qualitative methods via survey and interviews.		90 dyads: supervisors and their professional direct reports.	Supervisors: 60% held a bachelor's degree; 48% were female. Employees: 62% held a bachelor's degree; 59% were female.	USA
61	Golden et al. (2006)	Quantitative: survey	Web-based	454	65% men and 35% women; 54% were married.	USA
62	Schall (2019)	Quantitative: survey	Online	185	60.5% females, 33.5% males, and 5% identified as "other".	USA
COVID-19 WFC						
63	Demerouti (2023)	Quantitative: Experiment - A randomized control trial with a waitlist control group and pre and post measure.		116 completed the pre- and post-measure once (n = 39 in the intervention group and n = 77 in the control group), excluding the n = 23 waitlist intervention group.	80% women and 17% men; mean age was 41.7 years (SD = 11.1); 53.8% lived with their partners and children and 10.3% lived alone.	The Netherlands
Pre-COVID-19 WFC						

64	Lapierre et al. (2008)	Quantitative: Survey		1,553 managers from the US (n = 161), Canada (n = 194), Australia (n = 491), Finland (n = 255), and New Zealand (n = 452).	Australia: 49.8% female; 78.4% married or co-habiting. Canada: 43.0% female; 83.1% married or co-habiting. Finland: 53.6% female; 90.9% married or cohabiting. New Zealand: 30.5% female; 88.8% married or co-habiting. United States: 56.1% female; 84.4% married or co-habiting.	Multi-Country
65	Choroszewicz & Kay (2019)	Qualitative: semi-structured interviews.	In-depth	Lawyers in Finland (n=20) and Canada (n=14).	34 males; ages from 32-68 years; All were married or cohabiting.	Canada & Finland
66	Schieman & Young (2013)	Quantitative technique and data from the 2011 Canadian Work Stress and Health study (CAN-WSH) collected via telephone interviews.		5,729 (random probability sample generated by random-digit-dial methods).	48% women; average age was 40 years; 48% married or living with a partner; 40% had children younger than 18 years living in the household.	Canada
67	Turel et al. (2011)	Quantitative: survey	Online	241 mobile email users in three North American organizations.	60% male; average age was 38 years (SD = 13).	North America
68	Frone et al. (1997)	Quantitative: Paper survey		372 workers of a mid-sized financial services company.	75% women; average age was 35.77 years (SD = 7.12).	Canada
Work-family facilitation						
69	Hill et al. (2007)	Quantitative: Data from the IBM 2004 Global Work and Life Issues Survey.		122,064 IBM employees in 13 countries.	50.5% female and 49.5% male; average age was 41 years; 68.5% were married.	Multi-Country
Smart work and family routine						
70	Lagomarsino et al. (2020)	Quantitative: survey	Online	300 females	Average age was 41.09 years (SD = 15.29); 39.9% were single and 51.0% were married or cohabiting.	Italy

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