The Work-Life Balance Machine

Olawunmi Elizabeth Eniola[1]

[1] University of Regina, Saskatchewan, Canada

Correspondence: Olawunmi Elizabeth Eniola, University of Regina, Saskatchewan, Canada. E-mail: lizola1eniola@gmail.com

Abstract

Remote work or hybridized work has come to stay post COVID-19 pandemic, though not without both benefits and drawbacks. Work-life balance represents an essential need of remote workers, which could either be hindered or promoted during remote work. The continuous adoption of remote work warrants that the crucial challenge of work-life balance facing remote workers be addressed. Therefore, this study offers insights regarding the work-life balance processes of remote workers by following a research approach that involves synthesizing literature about remote work and work-life balance in an integrative way. This article upholds that the work-life balance processes of remote workers involve a work-life cognitive system that is responsible for maintaining equilibrium in the work-life system. The work-life system of remote workers includes elements, resources, forces, useful work, and output. Achieving balance between work and non-work domains is a function of the relative processes among the elements, resources, and forces within the work-life system. This article refers to the work-life balance cognitive system as 'the work-life balance machine'. The work-life balance machine provides knowledge about how and what remote workers need to learn, adapt to, and change in the environment in order to develop an optimally balanced work and life. Thus, based on the blending of theories and concepts with the synthesized evidence from literature, this article offers a model; the work-life balance machine and a definition of work-life balance. In addition, this paper highlights actionable insights critical for human resource management in developing, supporting, and maintaining remote workers' work-life balance.

Keywords: cognitive system, equilibrium, gender, job demands, job satisfaction, remote work, resources, technology, wellbeing, work-life balance

1. Introduction

The world of work has experienced increased temporal and spatial changes (Hardill & Green, 2003). COVID-19 brought rapid transformation to the workplace globally. Organizations are increasingly deviating from the traditional face-to-face work arrangement to implementing hybrid work or full remote work models since the disruptions brought by COVID-19 (Sokolic, 2022). Remote work is likely to become a standard expected by both employees and employers for jobs that are not restricted to designated places and time (Felstead & Heneseke, 2017), or do not require in-person services, or do not involve operating equipment (Dunatchik, Gerson, Glass, Jacobs, & Stritzel, 2021). Remote work (RW) is exclusive based on the type of industry and job profile (Mesquita, A. Oliveira, L. Oliveira, & Sequeira, 2020), because, for example, 36% of all jobs in Norway and 37% of jobs in the United States can be performed remotely (Travers, 2020). Still, as at July 2022, 24% of 2300 US employees had preference for working remotely while 16% favored the hybrid option (Lister, 2022). Similarly, in Vietnam, 63% of 178 women preferred to continue home-based telework post-COVID-19 in comparison to 39% of 177 men (Nguyen & Armoogum, 2021). Remote work format implementation is rising. Employees have been reluctant to resume traditional work arrangements post-COVID-19 pandemic, some of those with the capacity to work remotely are also interested in the hybrid work option. According to a Gallup survey, only 8% worked remotely pre-pandemic, while as at February 2022, hybrid workers increased to 42% and full remote workers were 39% (Wigert, 2022). In spite of the increasing interest, remote work has differential effects on individual's work-related outcomes (Cekuls, Malmane, & Bluzmanis, 2017). The implementation of remote work causes concerns because of employees' work-life balance. Work-life balance is a determinant of other important employee and organizational outcomes. Remote work has paradoxical consequences for workers' work-life balance and wellbeing. Telework affects work-life balance, though it allows autonomy and flexibility which typically foster better work-life balance. At the same time, remote work can lead

to an intensification of work, longer working hours, and the overlapping of work and home (Rodríguez-Modroño & López-Igual, 2021).

The case for work-life balance attracted a lot of global attention during the COVID-19 pandemic because of the enormous transition to remote work models. Work-life balance is a principal issue associated with remote work (Ferrara, Pansini, De Vincenzi, Buonomo, & Benevene, 2022). The absence of harmony between work and life spheres leads to numerous negative consequences for individuals, organizations, and the society (Skórska, 2021). The capacity of organizations to offer flexible work arrangements such as remote work is a risk-mitigation factor (Wigert, 2022). Remote work option and work-life balance make an organization attractive to potential hires. Work-life balance is a crucial factor for employees in selecting an employer (Abolina & Veselova, 2022). An improved work-life balance is a strong determinant of the continuity of remote work; prevents reverting to traditional work arrangements (Eriksson, Dellve, Williamsson, & Skagert, 2022). Remote work presented both benefits and challenges for work-life balance (Rapo, 2022). Full-time telecommuting is a boundary-fading phenomenon that has impacts on work-life balance (Jamal, Alalyani, Thoudam, Anwar, & Bino, 2021). Work-life balance is an essential social determinant of health, because conflicting priorities from both work and life domains create physical stress, burnout, depression, and anxiety (Brown, 2021). Work-life dynamics account for employees' wellbeing and quality of life and work (Spagnoli, Manuti, Buono, & Ghislieri, 2021). Work-nonwork balance is work-related wellbeing, the absence of which implies struggles with fulfilling work and home roles simultaneously (Syrek, Kühnel, Vahle-Hinz, & de Bloom, 2021). Imbalance between work and life influences individual's productivity, happiness, and life satisfaction (Skórska, 2021), and work-life balance is a significant determining factor of psychological well-being (Ng et al., 2021; Chu, Chan, & So, 2022).

2. Method

This article integrated knowledge from both recently published and old literature regarding remote work and work-life balance. The strategy used in discovering appropriate publications include searching databases such as Emerald Insight, Wiley Online Library, Oxford Academic, Taylor and Francis Online, PubMed, and Springer Link. The search was conducted between March 2022 and March 2023. The keywords used for searching include remote work and work-life balance, work-from-home (WFH) and work-life balance, teleworking and work-life balance, COVID-19 and teleworking, work-from-home, remote work, work-from-home or remote work and work-family balance, WFH or remote work and work-non-work balance, work-life balance, work-family balance, work-non-work balance, etc., The abstracts and texts were scanned to establish their relevance, after which some publications were excluded. Literature that investigated work-family conflict (WFC) were excluded because WFC is a distinct construct from work-life balance and WFC is one of the predictors of work-life balance (T. D. Allen, 2013, p. 703). The measures of WFC are different and/or opposite of the measures of work-life balance. Other excluded publications were those that examined work-home interference, work-life integration, work-life enrichment, self-employed nomads, etc., The main publications selected for this review were those that explored work-life balance and specified that the sampled population is working remotely full-time or part-time, or a large percentage of the study population is working remotely. Publications that used the concept of smart working and e-working were also included. 63 articles which include four pre-COVID-19 studies about remote work and work-life balance, 49 COVID-19 studies about remote work and work-life balance, two pre-COVID-19 work-life balance articles, and eight articles that examined remote work/WFH/telecommuting were synthesized (See Appendices B and C). In addition, 18 theoretical concepts and literature review articles about remote work and/or work-life balance that were generated from the search were also included. While six articles about measuring instruments, and 16 additional articles that also provided the theoretical and conceptual foundation for this review were sought for individually and also based on the references of the already screened/reviewed literature. Finally, 12 web-based publications regarding remote work and important concepts were included. According to the recommendations by Toracco (2005), this article used guiding theories such as balance theory, theory of machines, job demands-resources model, and conservation of resources theory to synthesize the ideas from literature in developing the conceptual model used for organizing the literature review. This article provides a new way of thinking about remote work and work-life balance by proposing a definition of work-life balance and the work-life balance machine which encompasses ideas about work-life cognitive system.

3. Remote Work and Work-Life Balance

Remote work involves carrying out work fully or partly at an alternative worksite rather than the default place of work i.e., office. Telework is a subdivision of remote work and involves an extensive use of information and communication technologies in executing work duties. Work-from-home refers to work that takes place fully or partly within the worker's own residence. Remote work-from-home, telework from home, and home-based teleworking involve using electronic devices as part of carrying out work from home (International Labor

Organization [ILO], 2020). In the context of this paper, the terms remote work, work-from-home, teleworking, and telecommuting, will be used interchangeably to refer to work executed outside the default place of work, and which is aided by information and communication technologies (computer, telephone, etc.,) in performing work and communicating with colleagues and clients without any in-person contact.

3.1 The Conceptualization of Work-Life Balance

The term work-life balance is extensively employed but there is no consensus in the definition of the term (Kalliath & Brough, 2008). Most literature used work-family balance definition when discussing work-life balance. However, roles in life consist of family roles within the modern society as well as other nonwork roles outside the typical workplace which are not connected to the family (T. D. Allen, Merlo, Lawrence, Slutsky, & Gray, 2021). The conceptualization of work-family balance revolves around themes such as satisfaction, multiple roles, conflict and resolution, perceived control, and fulfilment (Kalliath & Brough, 2008). It is crucial to note that there is converging evidence from researchers that 'satisfaction' is a prominent variable in the conceptualization of work-life balance (WLB). To mention a few, work-family balance is the "extent to which an individual is equally engaged in and equally satisfied with his or her work role and family role", which include three components; time balance, which refers to equal time devoted to both work and family roles; involvement balance which indicates equal involvement in both work and family; satisfaction balance which denotes equal levels of satisfaction in both work and family roles (Greenhaus, Collins, & Shaw, 2003, p. 513). According to Grzywacz and Carlson (2007, p. 458), work-family balance (WFB) is the "accomplishment of role-related expectations that are negotiated and shared between an individual and his or her role related partners in the work and family domains". Work-family balance is "as an overall appraisal of the extent to which an individual's effectiveness and satisfaction in work and family roles are consistent with their life values at a given point in time" (Greenhaus & Allen, 2010, p. 174). Clark (2000, p. 751) indicated that balance is the "satisfaction and good functioning at work and at home with a minimum role conflict". Kalliath and Brough (2008, p. 326) defined work-life balance as "the individual perception that work and non-work activities are compatible and promote growth in accordance with an individual's current life priorities". While Kirchmeyer (2000, p. 80) stated that WLB is "achieving satisfying experiences in all life domains, and to do so requires personal resources such as energy, time, and commitment to be well distributed across domains". Based on the ongoing, this article will take an all-encompassing approach to life beyond the workplace; family and all other non-work roles, by focusing on work-life balance that incorporates work and all life or nonwork domains.

This article synthesized a definition of work-life balance from extant literature, existing conceptualizations, and theories and concepts such as the job demands-resources model, conservation of resources theory, and the concept of equilibrium. Specifically, balance signifies a harmonious relationship or equilibrium of opposing forces or contrasting elements. Balance means adjusting forces to maintain an object at a level from which it would normally deviate (American Psychology Association [APA], n.d). There are forces and resources which require adjustment and maintenance in the work and non-work domains during remote work. Moreover, equilibrium is a condition in which all acting influences are canceled by others, resulting in a stable or balanced system. Equilibrium involves the adjustment of conflicting desires, interests, etc., Equilibrium is a state of balance between opposing forces (Your Dictionary, n.d). In the remote work context, there are opposing forces, interests, and desires from both work sphere and non-work sphere. Still, in economics, equilibrium is a state in which market supply and demand are equal or balance each other (Chen, 2022). In the remote work settings, resources are required for operating in the work and nonwork realms, as justified by the job demands-resources model and conservation of resources theory. Precisely, during remote work, supply and demand of resources may not be equal in both work and nonwork spheres.

The Job Demands-Resources model emphasizes that job demands are "physical, psychological, social, or organizational features of a job that require sustained physical, mental, and/or psychological effort from an employee that can result in physiological and/or psychological costs, e.g., work overload, job insecurity, and time pressure". On the other hand, job resources are "physical, psychological, social, or organizational features of a job that are functional because they help achieve work goals, reduce job demands, and stimulate personal growth, learning, and development" (Bakker & Demerouti, 2007, p. 312). They include supervisor and co-worker support, autonomy, pay, etc., Therefore, in the remote work settings, work conditions, work time, family time, and home or life conditions can either be a demand or resource. Remote workers are faced with demands in both work and nonwork spheres, and alleviating the effects of the work and non-work demands requires resources.

Conservation of Resources (COR) Theory suggests that "individuals employ crucial resources to conduct the regulation of the self, their operation of social relations, and how they organize, behave, and fit into the greater context of organizations and culture itself" (Hobfoll, 2011, p. 117). COR theory speculates that "resource gain and loss cycles occur in chronically stressful conditions; that "individuals must invest resources to protect against resource loss, recover from losses, and gain resources" (Hobfoll, 2011 p. 117-118). For example, personal resources are essential skills and personal traits such as self-efficacy and self-esteem. Condition resources include supportive work relationships. Energy resources are knowledge, credit, etc., This study assumes that remote workers invest these types of resources and gain resources as they execute their duties, regulate, and organize themselves in both work and non-work domains.

Therefore, this article defines *work-life balance as a state of equilibrium or harmony and satisfaction with resource investment and resource gains in either the work domain (roles) compared to the life (non-work) domain (roles) or life domain in comparison to the work domain*. Resource investment depends on individual and organizational (work) contexts. There may not be an equal distribution of resources or equal investment of the same type of resources in both work and life spheres. A domain may require some types of resources that the other do not require at a particular time, or a sphere may require higher levels of a specific resource compared to the other. Resource gain in one domain can enhance functioning in the other domain. However*, work-life balance is achieved when there is a state of equilibrium between work and life domains resulting from the adjustment of opposing or conflicting forces, resources, interests, and desires from both work and non-work domains*. For example, time pressure from life domain may be cancelled by time management or job control or flexible work arrangements from the work domain. Job demands from the work domain may be cancelled by family support and family supportive supervisory behaviors from both life and work domains respectively. Specifically, *work-life balance occurs when the acting forces, interests, and desires from work (life) domain are cancelled by the acting forces, interests, and desires from the life (work) domain*. Figure one and Appendix A portray a state where there is balance between work and life domains.

Work-life balance is described as a state because work and life systems are prone to changes and work-life balance typifies a condition in which an individual is, at a specific time. As depicted by the American Psychological Association dictionary, a state is the condition or status of an entity or system at a particular time that is reflected in the stability or dynamism of its primary components or elements (APA, n.d). An investment is the act of putting or outlaying effort, time, etc., into something to make a profit (gains), income, or get an advantage (Cambridge Dictionary, n.d). Resources are features for improving the quality of life and making profits or benefits (Safeopedia, n.d). Resources could be an action, strategy, asset, material, attribute, capability, etc., drawn on by an individual in order to function effectively. Examples of resources that can be invested for satisfactory functioning in both work and life (non-work) spheres are time, energy, supportive relationships, traits and dispositions, skills (communication, team building/bonding, and leadership), etc., The definition of work-life balance provided in this article is aligned with findings from extant literature and some other definitions of work-family balance e.g., Kirchmeyer (2000) and Greenhaus et al. (2003) that incorporated time, energy, involvement, commitment in their definitions. These aforementioned variables can be summed up as resources; time, energy, etc., are resources.

Figure 1. Work-life balance

3.2 The Work-Life Balance Machine

A cognitive system could be a human or non-human system that is proficient at learning and reacting to a changing environment (Igi-global, n.d). The remote work environment is a work-life system. A remote worker has a work-life system by virtue of the fusion of work with private life in the remote work setting, because activities and changes in the work (life) domain impact the life (work) domain. The work-life system is not static

but it is constantly undergoing changes, and the work-life balance process of remote workers involves a work-life cognitive system. Cognitions can be about oneself, another person, a group, things in the environment, behaviors, attitudes, beliefs, and feelings (Harmon-Jones & Mills, 2009). Remote workers have cognitions concerning themselves, others, the work-life environment, etc., The remote workers' cognition involves the work-life cognitive system, which is the combined cognitive processes about work and life. The work-life cognitive system entails simultaneous learning, reaction, adaptation, and goal setting involving both work and non-work domains. The work-life cognitive system of remote workers is capable of learning, reacting, and adapting to events and changes in the environment. Drawing from the balance theory which entails the cognitive consistency concept that people prefer elements within a cognitive system to be internally consistent with one another (i.e., balanced), because balanced systems are stable and psychologically enjoyable than imbalanced systems. Balance theory include the ideas that systems involve three elements; person (i.e., self), other person, and stimuli or events (Heider, 1946). Specifically, the work-life balance process of remote workers is a cognitive system that consists of elements that must be consistent in relation to another. There are elements in the work domain and non-work domain that remote workers desire to be consistent with one another so as to achieve an optimally balanced system. The three major elements in the work-life system are the remote worker as the 'self', employer, family, friends, colleagues, pets, etc., as the 'other person', and remote work as the 'stimulus or event'. Remote work is a stimulus or event because it could engender equilibrium or disequilibrium and other outcomes in the work-life system, and which can be classified as a change, or reaction, or an occurrence. Stimulus refers to an entity that causes another thing to develop, occur, change, and become active (Encyclopedia Britannica, n.d). Still, balance implies an equilibrium of opposing forces or contrasting elements and the adjustment of forces to prevent an entity from deviating from the required state. This emphasizes that there are forces interacting in the work and life spheres which could lead to a balanced or an imbalanced system.

Additionally, the conceptual blending also includes ideas from the theory of machines. The theory of machines indicates that a machine is an assembly or an arrangement of interconnected components or elements which receives energy, modifies, and transmits the energy in order to perform useful work and reduce human efforts (Chaturvedi, 2015; Khan, n.d). In like manner, the work-life balance processes of a remote worker consist of an interlinked assemblage that receives, modifies, and transmits resources within the work and life domains while the individual is working remotely so as to produce an output or bring about changes in the remote work-life system. The interconnected elements or components which make up the assemblage in the work-life balance machine are the person (self), other person, and remote work, and which receive resources and transform the resources into useful or specific work that generate outputs or cause changes within the work-life system. Besides, the theory of machines stipulates that there is relative motion between various elements of a machine and that forces act on the elements (Chaturvedi, 2015; Khan, n.d). Essentially, there are relative exchanges or interactions among the three elements of the work-life balance machine and there are forces acting on these elements.

Thus, this article proposes the work-life balance cognitive system or the work-life balance machine as a model through which the work-life processes during remote work can be understood. The model is developed based on the synthesis of extant literature about remote work and work-life balance. *The work-life balance machine is a cognitive system consisting of interconnected elements which are acted upon by forces, and require consistency or moderation, and which receive, modify, and transmit resources for useful work in the system, that leads to output or changes in work and life domains.* Hence, the work-life balance machine provides the conceptual structuring for this literature review.

3.2.1 Elements

3.2.1.1 Person (Self)

Individual differences, skills, competencies, and adaptive behaviors are related to work-life balance (Grant, Wallace, & Spurgeon, 2013). For instance, personality traits such as neuroticism, extraversion, agreeableness, and openness, excluding conscientiousness are causal conditions responsible for the negative impact of remote work on work-life balance (Bellmann & Hubler, 2020). Personal habits significantly influenced the work-life balance of agricultural research sector employees working remotely during COVID-19 in India (Muralidhar, Prasad, & Mangipudi, 2020). Remote workers in Finland maintained good work-life balance through their work routines, time management, and self-discipline, even though they had minor distractions and problems unplugging from work after the workday (Emma, 2021).

There are significant gender differences regarding work-family balance; home-based teleworkers had the highest gender gaps especially women with children (Rodríguez-Modroño & López-Igual, 2021). Work and family

interfered in different ways for fathers and mothers. For the father, family often hinders work and restricts productivity and the capacity to focus. For mothers, work inhibits family roles; reduces response to children's needs and causes difficulties mentally switching off from work after work hours (Cannito & Scavarda, 2020). Women working from home experienced a decrease in work-non-work balance at the beginning of the COVID-19 crisis (Syrek et al., 2021). Work-life balance is gendered in Iceland, mothers became stressed and frustrated due to the heavy burdens from undertaking domestic tasks and emotional labour during the COVID-19 lockdown (Hjálmsdóttir & Bjarnadóttir, 2021). Women remote workers in Silicon Valley had lower levels of work-from-home balance because of the interference of work demands with familial responsibilities (K. K. Allen, 2021). Work and domestic roles significantly interfered with one another for female British employees working remotely. The women engaged more in domestic duties during COVID-19 e.g., childcare duties, helping children with online schoolwork, cleaning, cooking, etc., Thus, increasing women's traditional "home manager" duties which impacted work-family balance. For example, leaving an online meeting to attend to children and then rushing back to the meeting caused the women to miss out on some work conversations (Adisa, Aiyenitaju, & Adekoya, 2021). Conversely, in Sri Lanka, virtual office had a more beneficial impact on female employees' work-life balance in comparison to males because virtual platforms enabled females to switch between domestic and career roles while working at home (Rathnaweera & Jayathilaka, 2021). Female remote workers in the Department of Social Protection in Ireland had a higher level of improved work-life balance than their male counterparts (Condon, 2021). Female IT remote employees in India had the highest work-life balance compared with the male IT remote workers (Gigi & Sangeetha, 2020).

Age moderated the relationship between time and work-nonwork balance during work-from-home in the Netherlands. Younger employees working from home suffered a decrease in work-non-work balance during the crisis and struggled more at the beginning of the pandemic to adjust to the forced home office situation (Syrek et al., 2021). In contrast, younger employees working from home had improved work-life balance than older remote workers in Ireland (Condon, 2021). Still, older workers reported greater work-life balance than younger workers during the COVID-19 work-from-home in the Netherlands. Resilience, mental health, capacity to focus, and sense of social integration during worktime which contributed to work-life balance increased linearly according to age for university employees (Scheibe, De Bloom, & Modderman, 2022).

3.2.1.2 Other Person

The interactions, activities, exchanges, behaviors, etc., with others such as children, co-workers, managers, family, etc., during remote work have important consequences for work-life balance. Literature has confirmed that work-life balance was impacted by lack of managerial support and employer's negative attitude due to employee working remotely in Latvia (Blumberga & Berga, 2022). Employers monitored remote employees' availability which made employees to be continuously present online, and which compromised employees' health physically and mentally and increased the inability to rest and switch off from work as appropriate (Navarro & Helms, 2020). Communication constraints with colleagues is a challenge of remote work that impedes work-life balance in Finland (Rapo, 2022). While, HRM practices positively impact work-life balance for IT and construction teleworkers in Vietnam (Anh, Pham, Nga, & Huong, 2022). Servant leadership and psychosocial safety climate had positive relationship with work-life balance for employees working from home during the lockdown in New Zealand (Kaushal, 2021). Family supportive supervisory behaviors fostered work-life balance. Indian employees with higher perceived work-to-family positive spillover had greater work-life balance which was activated by family supportive supervisory behaviors (Jamal et al., 2021).

A low number of individuals in the home during remote work promotes work-nonwork balance (T. D. Allen et al., 2021). Moreover, the presence of children under the age of 18 in the household negatively impacts work-life balance (Lonska et al., 2021). Academics from five continents had problems with work-life balance during remote work due to interruptions from children and family members (Parham & Rauf, 2020). Family status caused task overload (i.e., having dependent children and childcare duties) which impaired Hungarian academics' work-life balance when working from home during the COVID-19 lockdown (Aczel, Kovacs, van der Lippe, & Szaszi, 2021). Filipino parents struggled to balance work and home responsibilities, and children home schooling, though, were able to bond with children, socialize, and develop life skills while working from home during COVID-19 (Budhrani, Martin, Malabanan, & Espiritu, 2021). However, remote work eradicated stress and contributed to work-life balance for Generation Z's who had no parental duties (Robak, 2022).

3.2.1.3 Stimuli or Events: Remote Work

Remote work entails executing work outside the default place of work. Remote work is an event or activity that requires effort, and which causes a change or a reaction or something else to happen e.g., work outputs,

wages, promotion, etc., Remote work has both positive and negative effects on work-life balance (Rai, Megyeri, & Tabajdi, 2022). For instance, work-life balance was positive for remote workers in Finland because of flexible work schedule, no commuting, more free time, increased concentration, longer sleep hours, and development of new skills e.g., IT Skills (Rapo, 2022). Working remotely during COVID-19 enabled work-life balance, connectedness with family, and improved the quality of life (Waight, Kjerfve, Kite, & Smith, 2022). Teleworking enhances the capability to work flexibly and helps in managing non-work lives including relationships, chores, time with family, and eliminates extra childcare cost, and consequently improves work-life balance (Grant et al., 2013). Work-from-home promotes family-friendly work arrangement which leads to work-life balance (Shirmohammadi, Au, & Beigi, 2022). Remote work supports work-life balance of employees in Swedish companies through flexible work arrangements (Eriksson et al., 2022). Contrariwise, remote work is negatively related to work-life balance during COVID-19 (Martin, 2021; Bellmann & Hubler, 2020; Irawanto, Novianti, & Roz, 2021). HR managers from various sectors in Georgia experienced a lack of work-life balance during the pandemic-imposed work-from-home (Gigauri, 2020). Working remotely or from home did not enhance the ability of workers to balance work requirements and other life commitments in Zambia, workers could not detach from work at the end of the workday and had clashing interests (Silungwe, 2020). Work-life balance was disrupted for remote workers from various industries in Bangladesh during the COVID-19 pandemic (Shahriar et al., 2022).

The type of telework (home-based or mobile) generated different impacts on work-life balance. Home-based teleworking improves work-life balance by providing workers greater autonomy for managing work time. Highly mobile teleworkers experienced poor work-life balance (Rodríguez-Modroño & López-Igual, 2021). Part-time insurance companies' remote workers in Georgia were able to maintain balance between work and personal life in comparison to full-time remote workers (Maghlaperidze, Kharadze, & Kuspliak, 2021). Work-life balance decreased for Polish employees working fully remotely in comparison to those working in the office because employees had difficulties in drawing the line between work and non-work (Juchnowicz & Kinowska, 2021). Full-time remote workers experienced blurred boundaries between work and personal life, conflicting roles, and professional isolation (Maghlaperidze et al., 2021). Permanent remote work and work-life balance are negatively related. Remote workers in Germany had a lower work-life balance compared to non-remote workers (Bellmann & Hubler, 2020).

3.2.2 Forces

3.2.2.1 Technology

Information and Communication Technologies (ICTs) play a key role in remote work and work-life balance; without ICTs, telecommuting is impossible (Rai et al., 2022). Technology creates a spatial link between work and home environment (Grant et al., 2013). On the one hand, remote work can lead to work-life balance due to technologically-feasible work arrangement that enables flextime and flexplace (Shirmohammadi et al., 2022). Work-life balance during remote work can be attributed to technology which facilitates flexibility (Ferreira, Pereira, Bianchi, & da Silva, 2021). Virtual office platform has a significant positive impact on work-life balance (Rathnaweera & Jayathilaka, 2021). On the other hand, remote work can trigger work-life imbalance because of technostress (Shirmohammadi et al., 2022). ICTs induced technostress mediates the relationship between remote work and work-life balance, and higher ICTs usage causes technostress and work-life imbalance (Rai et al., 2022). Continuous access to ICTs increases UK remote workers' inability to switch off completely from work and impedes work-life balance (Grant et al., 2013). Difficulties in using technologies (devices) made professional and personal life more complicated for some smart workers in Italy (Mininni & Manuti, 2020). A UK multinational company's 24-hour e-mail culture negatively impacted employees' work-life balance during home-based telework (Waller & Ragsdell, 2012). Remote workers checked and responded to email messages during non-work hours (evenings, weekends, and during vacations) due to the use of ICTs, and which intensified work-home interference and consequently limited work productivity (Navarro & Helms, 2020). Remote work challenges such as interruptions due to internet connectivity issues, screen fatigue, and camera consciousness decreased the balance between work and life for academic women in India (Manzoor & Hamid, 2021).

3.2.2.2 Work Space

A dedicated workspace during remote work promotes work-nonwork balance, irrespective of boundary management preferences (T. D. Allen et al., 2021). At the same time, remote work can trigger work-life imbalance because of space limitation (Shirmohammadi et al., 2022). Lack of dedicated workspace during remote work hindered work-life balance in Silicon Valley (K. K. Allen, 2021). Limited working space and noise during work-from-home negatively affected the work-life balance of faculty members from 21 countries in

Africa, Asia, Australia, Europe, and North America (Parham & Rauf, 2020).

3.2.2.3 Job Demands

Multiple responsibilities; work cum cognitive demands and caregiving reduced the balance between work and personal life when working remotely (Iqbal, Suh, Czerwinski, Mark, & Teevan, 2018). Remote work demands in COVID-19 times were different because family members were at home with the workers and there was great uncertainty about work, health, and the economy (Sandoval-Reyes, Idrovo-Carlier, & Duque-Oliva, 2021). In relation to work, the job demands of employees working in remote mode resulted in decreased work-family balance (Landolfi, Barattucci, De Rosa, & Lo Presti, 2021). Telecommuting had negative effects on work-life balance due to the influence of job conditions and features. Maintaining a sense of control over work-life boundary while working remotely depends on job demands and control over work (Iqbal et al., 2018). Telecommuting is linked to psychosocial risk factors such as mental overload and a lack of fixed schedule, which induced stress, burnout, and struggles with work-life balance (M. García-González, Torrano, & G. García-González, 2020). Remote work demands directly reduced work-life balance in Latin America. Remote work demands caused stress which negatively impacted work-life balance (Sandoval-Reyes et al., 2021). Workload did not promote work-life balance for teleworkers in Latvia during the COVID-19 emergency (Lonska et al., 2021). Work schedules significantly influenced the work-life balance of employees working remotely in the agricultural research sector in India during the COVID-19 lockdown (Muralidhar et al., 2020). High remote work intensity or heavy workload and multi-tasking diminished work-life balance in Latvia (Blumberga & Berga, 2022). Increased remote work intensity resulted in lower levels of perceived work-life balance for ICT employees in Latvia (Cekuls et al., 2017). Remote work does not improve the work-life balance of couples in Italy due to increased working hours and intensity of work because job demands were received at all hours without respect for the time for personal life (Cannito & Scavarda, 2020). On a positive note, remote work increased work-life balance, and engendered task focus, control over time, method and pace of work in Portugal (Mesquita et al., 2020).

Moreover, remote work-imposed work-life balance challenges were linked to difficulties in disconnecting from work after non-work hours and fusion of work and private lives (D. Gandrita, A. Gandrita, & Rosado, 2022). Inability to unplug from work after work hours and long hours of work negatively affected work-life balance in Finland (Rapo, 2022). WFH in COVID-19 times in the United Kingdom caused blurred lines between work and personal life, as a result of longer work hours, overworking, and problems detaching from work during non-work hours (Rudnicka et al., 2020). In India, remote work is negatively connected to work-life balance because of difficulties in unplugging from work demands and overworking (Rai et al., 2022), and remote work does not increase leisure time because workers in Portugal perceived they work more (Mesquita et al., 2020).

3.2.2.4 Family Demands

Remote work triggers work-life imbalance because of housework and care intensity (Shirmohammadi et al., 2022). Establishing a sense of control between work and life border during work-from-home depends on care-giving responsibilities (Iqbal et al., 2018). Remote workers in Silicon Valley during the pandemic experienced challenges balancing work and family responsibilities due to the burdens of domestic work, caregiving, and missing perks from work, e.g., free meals (K. K. Allen, 2021). Parents experienced difficulties in maintaining balance between work and personal life during the pandemic in Poland due to problems in combining remote work with the responsibilities of childcare and shopping (Skórska, 2021). Increased parental duties due to closure of schools and childcare services made it difficult to achieve work-life balance (Rai et al., 2022). Distractions from children and pets contributed to problems in realizing work-life balance (D. Gandrita et al., 2022; Rudnicka et al., 2020; Emma, 2021; Martin, 2021).

3.2.2.5 Isolation

Remote work activates work-life imbalance through social isolation (Shirmohammadi et al., 2022). Social and professional seclusion is exacerbated because of remote work (Mesquita et al., 2021). Higher work loneliness during remote work leads to exhaustion and lower work-life balance. Remote workers in the United States who had higher work loneliness experienced more exhaustion and lower work-life balance (Becker, Belkin, Tuskey, & Conroy, 2022).

3.2.2.6 Boundary Violations

Boundaryless work occurred during the pandemic because of the spatio-temporal-relational disarticulation (Carreri & Dordoni, 2020). 36.2% of 1715 university employees working from home during the lockdown reported fuzzier boundaries (Scheibe et al., 2022). The perceived work-life balance levels when teleworking

depends mostly on the ability to manage the boundaries between work and private life (Ferrara et al., 2022). Teleworking during COVID-19 triggers boundary violations which was detrimental to work-life balance because individuals were compelled to perform their work in the same space and at the same time while concurrently managing family and domestic demands (Carvalho, Santos, Ribeiro, & Chambel, 2021). Boundary violations from work to family or family to work is negatively related to work-family balance during teleworking in Portugal (Carvalho et al., 2021). Remote work is negatively related to work-life balance because of boundary mix-up for both singles and parents (Rai et al., 2022). Establishing balance between work and personal life when working remotely was difficult for US residents due to the challenges of negotiating boundaries (Iqbal et al., 2018). Smart workers in Italy had stressful experience in managing work-family balance because life and work invaded each other's borders (Mininni & Manuti, 2020). Indian academic women had difficulties with work-life balance because of dilution of the boundary between work and family (Manzoor & Hamid, 2021).

3.2.3 Resources

In the remote work mode, job and family resources contributed to increasing work-family balance by resulting in time and energy savings, increased expertise, and performance, thus, enabling balance between work and family. For instance, a less tiresome workday due to adequate supervisor support and opportunity to control work pace saved energy which was invested in household chores and childcare (Landolfi et al., 2021). Examples of job resources include job control, coworkers support, supervisor support, and organization support (Landolfi et al., 2021; Como, Hambley, & Domene, 2021). In the remote working conditions, job control facilitates work-family balance (Landolfi et al., 2021; Becker et al., 2022). Supervisor support and co-worker support had significant positive direct effects on work-family balance (Landolfi et al., 2021). Organizational support is essential in alleviating the problems of work-life wellness caused by stress, distraction from children, and other troubling home dynamics according to a Canadian study (Como et al., 2021). Family supportive supervisory behaviors are resources that support work-life balance of remote workers. Employees are more likely to experience higher work-to-family positive spillover when employers demonstrate family supportive supervisory behaviors (Jamal et al., 2021). Family support heightens work-family balance of Italian teachers working in remote mode with merged work and family scenarios (Landolfi et al., 2021). At the same time, remote workers experienced a loss of resources (e.g., time and energy) that can be invested in family activities to job demands, for example, overtime and work overload caused stress and fatigue that limited the ability to cope sufficiently with family needs, thus, leading to decreased work-family balance (Landolfi et al., 2021).

Job autonomy is a major job resource for supporting telecommuters work arrangements which promotes work-life balance. Job autonomy aids employees in experiencing work-to-family positive spillover by enabling individuals to switch between work and family roles efficiently (Jamal et al., 2021). Job autonomy improves remote workers' work-life balance in Italy (Boccoli, Sestino, Gastaldi, & Corso, 2022). Working remotely enabled independence (autonomy) which improved the quality of life and work-life balance for Generation Z in Poland (Robak, 2022). Remote work contributes to an optimal work-life balance for Latvians based on the autonomy to manage personal work schedules (Abolina & Veselova, 2022).

Work-life balance during remote work improved because commute time reduced and Brazilian MNC's employees had more time with family and pets (Waight et al., 2022). Work-from-home resulted in 'conquered time' for some of the academics in Italy. Working from home enabled a better quality of time for thinking and working, and devoting more time to family relationships (Carreri & Dordoni, 2020). Temporal flexibility enhances work-life balance of remote workers (Boccoli et al., 2022). Increased flexibility to plan and manage individual's own time and schedules contributes to work-life balance in Portugal (Ferreira et al., 2021). Remote work positively shaped work-life balance (enabled balanced professional and private spheres) and improved the overall quality of life of Generation Z through flexible time management (Robak, 2022). On the contrary, the imbalance between private-life and work during work-from-home was due to the significant effects of working outside the contractual working hours (Bellmann & Hubler, 2020). Telecommuting is associated with stressors such as time pressure which leads to stress, burnout, and difficulties with work-life balance (M. García-González et al., 2020), and struggles with meeting deadlines was detrimental to work-life balance during COVID-19 work-from-home in Ireland (Martin, 2021).

Moreover, boundary management strategy (i.e., segmentation or integration) is a resource because resources are strategies, actions, etc., employed for optimal functioning. Prior research indicated that boundary management involves practices, strategies, and processes, for creating and maintaining role boundaries between work and home which depends on individual preference, environmental factors, etc., (Ashforth, Kreiner, & Fugate, 2000; Nippert-Eng, 1996). Boundary management could occur through segmentation or integration. Segmentation involves enacting intact temporal and physical boundaries between work and nonwork while integration is

removing the boundaries between work and nonwork (Ashforth et al., 2000). For instance, the preference for segmentation helped in balancing work and nonwork roles for remote workers in the United States (T. D. Allen et al., 2021). Work-life balance is an important challenge for remote workers with a preference for stringent segmentation of work and life (Best, 2021). Work-life balance could cause depression and insomnia depending on remote workers' high or low segmentation preference (Becker et al., 2022). Remote workers who perceived higher job control had lower exhaustion and better work-life balance, because of the moderating effect of segmentation preferences (Becker et al., 2022). Females working from home experienced interdomain management difficulties when family life was impacted by work activities. Females adopted more segmentation behaviors in comparison to males, although women were more negatively affected by work activities because their segmentation behavior from work-to-family decreased during high boundary violations in comparison to men's segmentation behavior (Carvalho et al., 2021).

3.2.4 Useful Work and Output

Work-life balance impacts psychological health and the effects depend on boundary management strategies, gender, and frequency of telework according to a Canadian study (Elbaz, Richards, & Savard, 2022). Work-life balance is positively related to the mental well-being of software professionals in Turkey (Tokdemir, 2022). Work-life balance had positive effects on psychological wellbeing by boosting happiness and relieving stress for full-time employees working from home in Hong Kong (Chu et al., 2022). Work-life balance promotes remote workers' psychological well-being in form of work engagement in Italy (Boccoli et al., 2022). However, struggling to balance work and family negatively impacts the emotional well-being of Malaysian women working remotely with young children (Tengku Mahamad, Abdul Ghani, De Luna, & Rivadeneira, 2021). Work-life balance is negatively connected to anxiety and depression (Haar, Russo, Sune, & Ollier-Malaterre, 2013). In addition, work-life balance had 37.4% significant positive influence on the motivation of WFH telecommunication employees in Indonesia (Ramadhan & Wijaya, 2021). Work-family balance was positively and significantly connected to flourishing and negatively and significantly associated with burnout during remote work in Portugal (Carvalho et al., 2021). Work-life balance is negatively related to work-from-home employees' stress level (Chu et al., 2022). Imbalance between family and work roles resulted in dissatisfaction, stress, exhaustion, and even guilt for Indian academic women because of the inability to fulfil the role of a mother, caretaker, and house maker (Manzoor & Hamid, 2021).

Work-life balance is positively associated with job and life satisfaction across seven cultures; Malaysian, Chinese, New Zealand Maori, New Zealand European, Spanish, French, and Italian. In individualistic and gender egalitarian cultures, higher work-life balance had positive relations with job and life satisfaction than in collectivistic cultures (Haar et al., 2013). Work-life balance increases remote workers' job satisfaction (Jamal et al., 2021; Kaushal, 2021; Boccoli et al., 2022; Anh et al., 2022; Ferreira et al., 2021; Cekuls et al., 2017). Work-life balance plays a mediating role between job autonomy and job satisfaction during remote work for Indian IT sector employees (Jamal et al., 2021). The indirect positive relationship between job autonomy and job satisfaction via work-life balance is positive in employees with higher perceived work-to-family positive spillover and prior telecommuting experience (Jamal et al., 2021). A good work-life balance contributes to life satisfaction (Rai et al., 2022). Work-family balance mediates the positive relationship between family support and life satisfaction of Italian teachers working remotely (Landolfi et al., 2021). Besides, work-family balance positively mediates the associations between job control, coworkers' support, and supervisor support with life satisfaction (Landolfi et al., 2021). Work-life balance during remote work is positively correlated with productivity for Ericson employees in Jordan (Balushi, Bashayreh, & Jalagat, Jr., 2022). Satisfaction with work-life balance promotes full-time remote workers' loyalty to the organization (Blumberga & Berga, 2022), while decreased work-life balance during remote work reduced ICT employees' organizational commitment in Latvia (Cekuls et al., 2017).

4. Discussion

4.1 Theoretical Implications

This article makes contribution to knowledge regarding remote work and work-life balance by proposing the 'work-life balance machine' or the work-life balance cognitive system. The work-life balance machine is a cognitive system consisting of interconnected elements which form the work-life system and which are acted upon by forces, and require consistency or moderation, and which receive, modify, and transmit resources for useful work in the system, that leads to output or changes in work and life domains. The work-life cognitive system involves cognition about work (life) domain that is conducted in relation to life (work) domain in order to achieve consistency among the interconnected elements, resources, and forces operating in the work-life system.

Figure two depicts the work-life balance machine. The work-life balance machine contains a system of ideas that describes and explains the work-life balance processes during remote work. In alignment with Dubin's (1978) approach, the building blocks or units of the work-life balance cognitive system are cognitive processes, elements, resources, forces, useful work, and output. The three interconnected elements in the work-life balance cognitive system are the self, other person, and stimuli or events. The variables under each unit are drawn from extant literature. The self is the remote worker, which include variables such as remote workers' personal attributes, personality traits, habits, skills, self-discipline, personal work routines, age, and gender. These individual factors influence the balance between work and life spheres during remote work. The other person includes co-workers, managers, family, children, clients, pets, etc., with whom the remote worker interacts, communicates, engages with, and participates in activities with during remote work. The other person and the accompanying processes such as dependency from children, family supportive supervisory behavior, and servant leadership, etc., impact the state of equilibrium within the work-life system. Remote work is the third element, which is regarded as a stimulus or event, and involves carrying out work outside the default place of work, that either engenders equilibrium or disequilibrium and other outcomes in the work-life balance machine. Resources are investments, actions, strategies, assets, materials, attributes, and capabilities that are essential for achieving satisfactory quality of work and life. As confirmed by literature, resources employed during remote work include time, job autonomy, job control, work flexibility, coworkers support, supervisor support, organizational support, boundary management tactics of either segmentation or integration, and family support. Forces are influences or actions that can either alter or maintain work-life balance. The forces altering or maintaining the balance or imbalance between work and life domains during remote work include technology, space, job demands, family demands, distraction, isolation, psychological detachment, and boundary violations. Useful work refers to efforts and activities channeled toward accomplishing an output and could also be described as the product or outcome of an effort. For instance, literature portrays work-life balance or imbalance as the outcome that is directly dependent on or is directly associated with variables such as remote work, work demands, ICTs usage, job autonomy, domestic duties, parenting, etc., Moreover, work-life balance is also depicted as a mediator between remote work, job autonomy, family support, culture, and other outcomes such as job satisfaction, life satisfaction, wellbeing, productivity, etc., Thus, work-life balance is the outcome of the relative processes in the work-life system and also the effort channeled toward achieving other work and life output or outcomes. Output is the actual item produced or generated by a person, system or machine. Useful work, that is, work-life balance in the remote work context generates output such as wellbeing, motivation, work engagement, flourishing, happiness, job satisfaction, life satisfaction, productivity, psychological, emotional, and mental wellbeing, organizational commitment, and organizational loyalty while non-useful work (imbalance) produces burnout, stress, anxiety, depression, etc.,
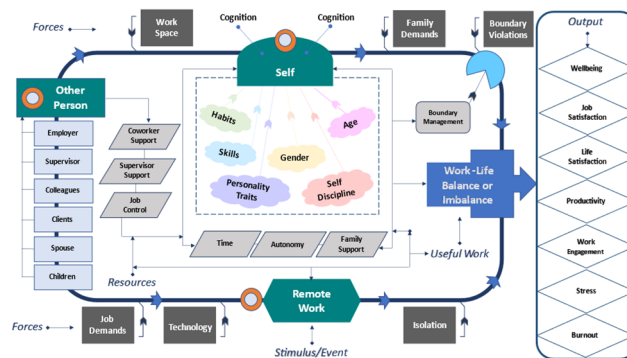

Figure 2. The work-life balance machine

Proposition 1: If the stimulus, remote work is negatively associated with an individual's useful work, then, as remote work increases, useful work (work-life balance) diminishes within the work-life system.

Proposition 2: If forces acting in the work-life system are negatively associated with useful work, then, useful work (work-life balance) will decrease as a result of influence (increase) of the forces in the work-life system.

Proposition 3: If resources transmitted by the elements are positively associated with useful work, then, as resource investment increases, useful work (work-life balance) will increase.

Proposition 4: If changes in personal characteristics, exchange processes with the other person, and remote work (stimuli) alter remote workers' cognition, then, a change in personal characteristics, exchange processes with the other person, and stimuli imply a change in the remote workers' work-life cognitive system and useful work.

The work-life balance machine provides a coherent ordering of the relationships among the units; elements, forces, and resources interacting within the work-life system and their outcomes. The law of interactions among the units in the work-life balance machine is exemplified by the concept of kinematically related links or parts with relative motions. The elements, resources, and forces in the work-life balance machine are connected in a way that there are relative processes, exchanges, interactions, and activities between various elements in the system, such that when there is a change in one element, resource, and force, all the other elements, resources, and forces will also undergo changes. If there is a change in one element, force, and resource, then the change will activate a change in the other elements, forces, and resources. Each part of a work-life balance machine, undergo processes, interactions, and activities relative to some other parts. For example, an increase in job demands signifies an increase in technology usage, which has consequences for boundary violations, which in turn may affect family roles, leisure time, and also implies time pressure, and may require more resources like the use of more supervisor support, or boundary integration strategies, and which may consequently impact work-life balance and may lead to productivity or burnout.

Proposition 5: If a change in one element alters the other elements, then, a change in the elements implies a change in useful work or non-useful work; work-life balance or work-life imbalance.

Proposition 6: If a change in an element, a force, or a resource alters the other elements, forces or resources, then, a change in the elements, forces, resources, implies a change in useful work or non-useful work; work-life balance or work-life imbalance.

Synonymous to a typical machine, the work-life balance machine involves a combination of elements which receives resources and utilizes them to do some specific type of work so as to make work and life easier, decrease stressors, and reduce imbalances across work and life domains. Resources in the work-life system reduce the impacts of demands or influence of forces and help in achieving goals, which is in alignment with the notions of job demands-resources model (Bakker & Demerouti, 2007). Resources are time, energy, commitment, etc., For instance, an individual may invest time or energy on boundary management strategies in order to reduce boundary violations (a force) during remote work so as to achieve work-life balance. Remote work consumes the person's (self) resources and even the other person's resources e.g., managerial support, co-worker support, and family support, require the other persons like the manager, co-workers, and family members to expend their resources. This is in line with the ideas that individuals expend resources to gain resources and recover from resources loss in performing their work and for operating and regulating self within the organization and society (Hobfoll, 2011), and which makes the work-life balance process, a cycle of resource investment, losses, and gains for effective functioning within the work-life system. Fundamental to a typical machine is receiving energy to do useful work. The elements in the work-life balance machine receive resources, modify, and transmit available resources to reduce disharmony between work and non-work domains or create a state of equilibrium between work and life domains. Links in machines transmit motion (Khan, n.d), in the same way, the elements of the work-life balance machine transmit resources that impact the system or trigger changes in the work and life domains leading to work-life balance. For example, the person (self) could employ job control and autonomy to mitigate against job demands and therefore facilitate work-life balance. The other person e.g., manager may employ family supportive supervisory behaviors which improve employees work-life balance. Work done remotely reduces the time spent commuting and consequently engenders work-life balance.

Proposition 7: Remote workers who receive resources from others will produce useful work that leads to desirable output than remote workers who did not receive resources.

Proposition 8: Remote workers who expend their resources will produce useful work that leads to desirable output than remote workers who over expend their resources.

Proposition 9: If remote work (stimuli) over expends or consumes the resources of the person and other person, then, the loss of resources by the person and other person will decrease useful work in the system.

Forces act on machine parts and generate effects (Chaturvedi, 2015). Likewise, the elements in the work-life balance machine are under the influence of forces which produce effects, that is, changes in the work-life system. For example, technological forces may induce technostress for the employee, which adversely impacts work-life balance, and family demands may occur in form of care intensity, domestic work, and parental duties and may likely trigger exhaustion and stress which lower work-life balance.

Proposition 10: If changes in the forces are positively associated with the change in one element, then, an increase in the forces operating on one element will increase the changes in the other elements.

Proposition 11: If changes in the forces are positively associated with the changes in the elements, then, as the forces operating on the elements increases, changes in useful work (work-life balance) will increase.

A crucial essence of a machine is having an output, a mechanism that simply converts inputted energy to friction heat is not a machine (Khan, n.d). In the same vein, the elements in the work-life balance machine undergo interactions and activities, process resources, and are under the influence of forces to produce useful work (equilibrium) or non-useful work (disequilibrium) in the work-life system. Useful work (equilibrium) in the work-life system leads to desirable outputs such as job and life satisfaction, productivity, organizational loyalty and commitment, wellbeing, etc., while, non-useful work (disequilibrium) in the work-life system engenders undesirable output such as poor mental wellbeing, stress, exhaustion, anxiety, burnout, depression, etc.,

Proposition 12a: If useful work is positively associated with output or products in the work-life system, then, desirable output increases as a result of increase in useful work.

Proposition 12b: If non-useful work is positively associated with output or products in the work-life system, then, undesirable output increases as a result of increase in non-useful work.

The work-life balance machine is valuable in contexts that require sense-making of the entire processes and activities that occur during remote work and how they interplay with work and life and other employee outcomes. According to Harmon-Jones and Mills (2009), the presence of an imbalance or inconsistencies makes an individual psychologically uncomfortable, which provokes the individual to want to reduce the inconsistencies, and the greater the extent of the inconsistencies, the greater the pressure to decrease the inconsistencies. Remote workers are under pressure to reduce inconsistencies and prefer the elements, resources, and forces to be consistent in relation to another. Thus, maintaining or achieving consistency between work and life domains depends on the work-life cognitive system of remote workers, which has the capacity to learn, react, and adapt to events and changes in the environment. The work-life cognitive system involves examining both work system and life system or the work-life system. Specifically, reducing inconsistencies or imbalance between work and non-work involves understanding the remote work conditions and environment, the changing circumstances, and making decisions about the elements, resources, and forces in the work-life system. Thus, the work-life balance machine facilitates an understanding of the elements, resources, forces, useful work, and outputs that require actions or controls within the work-life system.

Moreover, Vernon (2021) indicated that perceiving the environment, learning from experience, anticipating the outcomes of events, taking actions for goal-oriented purposes, and adaptation to changes occur within a human cognitive system. Therefore, in line with the ideas of the work-life balance cognitive system, learning, acting, adapting to the environment, and making relevant changes, could include, examining which of the elements and their variables require adjustment in order to achieve balance e.g., remote workers or self may need to adapt or change their behaviors regarding technology usage. Identifying which of the forces are at play and which need to be subdued or reinforced. Establishing if there are opposing forces that need to cancel each other e.g., boundary violations may be cancelled by boundary management strategies. Recognizing which resources are in demand or are being supplied or which resources are deficient and should be replenished or which resources exist in abundance and should be maintained. Precisely, not all the variables of the three elements, forces, and resources will be at play together at the same time in the work-life system of a remote worker. The work-life cognitive system helps to identify which of the variables of the forces, resources, and the specific variables of the elements are active in the work-life system. For example, in a remote worker's work-life system, the force could be technology while for another remote worker, it could be isolation, and the resource at play could also vary based on the circumstances. The variable of an element (self) at play for an individual could be extraversion and for another gender, and there could be a combination of variables depending on individual and environmental context. In essence, the work-life balance machine is useful for problem-solving regarding remote work phenomenon and work-life balance.

Proposition 13: If remote workers engage in cognitive activities that include perceiving the environment, learning from experience, anticipating the outcomes of events, and taking actions and making changes for goal-oriented purposes, then, useful work (work-life balance) will increase as a result of the cognitive activities of the remote worker than for remote workers that does not engage in cognitive activities.

Proposition 14: If a change in the work-life cognitive system of remote workers alters the work-life system, then, a change in the work-life system implies a change in useful work (work-life balance).

Proposition 15: If changes in the work-life cognitive system is positively associated with alteration in useful work, then, useful work (WLB) improves as result of the alteration of the work-life cognitive system.

The work-life balance machine has two discrete system states, there could inconsistencies or consistency in the work-life balance machine. This implies a balance or an imbalance between work and life domains. If there is an inconsistency or imbalance within a machine or among various elements in a machine, the machine will not be able to do useful work. For example, if a part or element in a sewing machine is broken, it will generate an imbalance within the system of the sewing machine and, therefore, will be unable sew clothes. Likewise, if there are inconsistencies within the elements, resources, and forces in the work-life balance machine, it will be unable to do useful work but cause an imbalance between work and life domains. The imbalance will interfere with the functions of the work-life system, and consequently will be unable to produce valuable or desirable output such as life satisfaction, productivity, wellbeing, job satisfaction, etc., and may result in undesirable output e.g., stress, burnout, anxiety, etc., Moreover, inconsistencies in the work-life system impact the work-life cognitive system and vice versa.

Proposition 16a: If there is consistency among the elements, resources, and forces, in the work-life balance machine, then, the work-life balance machine will generate useful work that leads to desirable output.

Proposition 16b: If there is inconsistency among the elements, resources, and forces, in the work-life balance machine, then, the work-life balance machine will generate non-useful work (imbalance) that leads to undesirable output.

According to Swanson and Chermack (2013), discussing the empirical indicators of concepts are essential in facilitating the measurement of concepts. A few of the empirical indicators of the concepts of the work-life balance machine are hereby highlighted. The values of useful work (WLB) could be measured by the work-life balance scale by Haar (2013), and two of the output could be measured with job and life satisfaction scale (Judge, Bono, Erez, & Locke, 2005). A resource value e.g., job autonomy, could be measured with items from the Work Design Questionnaire (WDQ) (Morgeson & Humphrey, 2006), and one of the forces could be measured by the professional isolation scale (Golden, Veiga, & Dino, 2008). The value of a variable under 'self' e.g., personality trait, could be measured with items from the big five inventory (BFI) (John, Donahue, & Kentle, 1991). The value of a variable under the 'other person' e.g., servant leadership, could be measured by the servant leadership scale (Haar, Brougham, Roche, & Barney, 2017). Remote work could be measured by any instrument that measures remote work or work-from-home or telecommuting from home, while, work-life cognitive system scale would be developed as there is no existing measure for cognitive activities involving the work-life system.

4.2 Implications for Human Resource Management

A key feature of the work-life balance cognitive system is learning from the environment, and adapting to changing environments. Remote workers and organizational leaders need to learn from their direct experiences in the remote work environment and the knowledge in literature, which will enable them to take appropriate actions, and make adjustments according to changing circumstances. This article has provided comprehensive knowledge about the elements, forces, and resources that contribute to work-life balance. This knowledge is useful in supporting the management of remote workers in various organizations. In addition, the knowledge can inform employees' work practices in a way that improves work-life balance. For instance, the remote worker is an important element (person or self) in the work-life cognitive system and must demonstrate agency in perceiving the environment, learning from experience, pursing goals, adapting to changing work-life environment, and making necessary changes in the work-life system. Which is in agreement with the ideas that the effectiveness of telework depends on employee self-management tactics such as planning work activities and setting goals, deciding the order of tasks in advance, setting start, break, and quitting times (Mihalca, Irimiaş, & Brendea, 2021, p. 624).

Resources are crucial in maintaining work-life balance. Resources such as time, segmentation or integration practices, autonomy, support from co-workers, supervisor, and organization, etc., contribute to sustainable remote work. The resources either directly promote work-life balance or activate an enabling condition for work-life balance to develop during remote work. Employees should be encouraged in using these resources while working remotely. Employees must also pay attention to work or non-work factors that may deplete their resources. While organizations should devise policies and practices that support the reinforcement of conditions that help maintain resources which have positive influence on work-life balance.

The notable forces causing work-life balance problems for remote workers include time pressure, workload, boundary violations, continuous use of ICTs, technostress, inability to detach from work, distraction, isolation, etc., Thus, effectively managing remote workers, either fully remote or hybrid, requires addressing these forces.

Explicitly, reinventing and realigning traditional procedures, practices, and strategies will help subdue these forces. These include reinventing HRM policies to cater for the changes in the understanding of the workplace and management practices regarding work space, work time/hours, response time to emails, mental health and wellbeing, job design, technological platform, and after work-hours technology use (Sengupta & Al-Khalifa, 2022; K. K. Allen, 2021).

Moreover, sustaining a healthy work-life balance depends on reshaping and changing organizational culture to suit full remote or hybrid work requirements and management. This includes, engaging leadership at all levels of the organizational hierarchy, especially middle management leadership in preventing or limiting psychosocial risks e.g., workaholism and technostress (Spagnoli et al., 2021). Reinforcing leadership behaviors that showcase a corporate culture of flexibility (K. K. Allen, 2021). Promoting remote work practices that demarcate temporal and psychological boundaries for the employees, and customizing remote work practices to meet the needs and interests of employees (Perrigino & Raveendhran, 2020), for example, in ways that can reduce gender gaps, and by building cultures that address gender issues (Dunn & McMinn, 2021). Without excluding skills development through training of managers in managing employees and teams in remote work environments and supporting employees' mental health (Sengupta & Al-Khalifa, 2022).

Essentially, enabling remote workers' work-life balance is a vital strategic imperative for organizations because organizational ability to facilitate work-life balance is a significant competitive factor for attracting and retaining talents (Greenblatt, 2002). Thus, developing strategies, policies, and practices, necessitates that managers should understand what facilitates or inhibits work-life balance. Moreover, the formulation of policies is one thing but implementation is another, hence, organizational leaders must endeavor to implement the reinvented policies (Perrigino & Raveendhran, 2020) and encourage employees to make use of available policies (Dunn & McMinn, 2021).

4.3 Recommendation for Future Research

The work-life balance machine is useful in facilitating research regarding the work-life balance of remote workers or work-from-home employees. Future empirical research could investigate the effects of remote workers' work-life cognitive system on work-life balance? How the interrelationship and changes in the three elements impact work-life balance? The direct and indirect effects of the elements on remote workers' work-life cognitive system, useful work (work-life balance), and output (the outcomes of balance or imbalance). The direct and indirect effects of resources and forces on remote workers work-life cognitive system, useful work, and output? In addition, most of the literature about work-life balance equated life or non-work with family (only spouse and children) and did not include other non-work roles that workers may hold which encompass free time, leisure, hobbies, friends, duties toward relatives, social networks, social media, and other social institutions or activities (e.g., religion). The lack of a holistic approach limits the conceptual understanding of life beyond work, work-life balance, and the findings about work-life balance. Therefore, this article suggests that future research about work-life balance should incorporate the full concepts of life outside work.

4.4 Limitation of the Study

Most of the remote work and work-life balance publications synthesized in this study were based on the mandatory remote work during COVID-19 pandemic. COVID-19 is an environmental stressor (Khan, 2021), which directly influences wellbeing and work-life balance. The findings about work-life balance from forced remote work situations could be different from the findings about work-life balance during voluntary remote work and under conditions without a global pandemic. Thus, the presence of a stressor and the involuntary nature of the remote work which constitute important contexts in the dominant publications may limit the applicability of the findings from this study to normal conditions or contexts.

Acknowledgments

References

Abolina, I., & Veselova, A. (2022, May 13). Work-life balance in the context of remote work. *The 14th International Scientific Conference. New Challenges in Economic and Business Development - 2022: Responsible Growth* (pp. 23-29). Riga, Latvia.

Aczel, B., Kovacs, M., van der Lippe, T., & Szaszi, B. (2021). Researchers working from home: Benefits and challenges. *PLOS ONE 16*(3), e0249127, 1-13. https://doi.org/10.1371/journal.pone.0249127

Adisa, T. A., Aiyenitaju, O., & Adekoya, O. D. (2021). The work-family balance of British working women during the covid-19 pandemic. *Journal of Work-Applied Management, 13*(2), 241-260. https://doi.org/10.1108/JWAM-07-2020-0036

Allen, K. K. (2021). *Job satisfaction of remote technology employees seeking work/life balance at a growing Silicon Valley firm.* [Doctoral dissertation, Vanderbilt University]. Vanderbilt University Repository. https://ir.vanderbilt.edu/handle/1803/16520

Allen, T. D. (2013). The work-family role interface: A synthesis of the research from industrial and organizational psychology. In N. W. Schmitt, S. Highhouse, & I. B. Weiner (Eds), *Handbook of psychology: Industrial and organizational psychology* (pp. 698-718). Hoboken, NJ: USA. John Wiley & Sons Inc.

Allen, T. D., Merlo, K., Lawrence, R. C., Slutsky, J., & Gray, C. E. (2021). Boundary management and work-nonwork balance while working from home. *Applied Psychology: An International Review, 70*(1), 60-84. https://doi.org/10.1111/apps.12300

American Psychological Association. (n.d). Balance. *In APA dictionary of psychology*. Retrieved March 15, 2023, from https://dictionary.apa.org/balance

American Psychological Association. (n.d). State. *In APA dictionary of psychology*. Retrieved March 15, 2023, from https://dictionary.apa.org/state

Anh, N. T. L., Pham, N. T., Nga, H. T. G., & Huong, N. T. T. (2022). Job satisfaction in remote work context: The mediating effect of work-life balance and digital hrm support. In *DOKBAT 2022 - 18th International Bata Conference for Ph.D. Students and Young Researchers* (Vol. 18, pp. 9-18). Zlín: Tomas Bata University in Zlín, Faculty of Management and Economics. Retrieved from http://dokbat.utb.cz/conferenceproceedings/

Ashforth, B. E., Kreiner, G. E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *Academy of Management Review, 25*(3), 472-491. https://doi.org/10.5465/AMR.2000.3363315

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology, 22*(3), 309-328. https://doi.org/10.1108/02683940710733115

Balushi, A. T. H., Bashayreh, A., & Jalagat, Jr., R. C. (2022). Assessing the impact of remote working, work-life balance, and organizational commitment on employee productivity. *European Academic Research, X*(4), 1521-1538.

Becker, W. J., Belkin, L. Y., Tuskey, S. E., & Conroy, S. A. (2022). Surviving remotely: How job control and loneliness during a forced shift to remote work impacted employee work behaviors and well-being. *Human Resource Management,* 1-16. https://doi.org/10.1002/hrm.22102

Bellmann, L., & Hubler, O. (2020). Working from home, job satisfaction and work-life balance – Robust or heterogeneous links? *International Journal of Manpower*, 1-18. https://doi.org/10.1108/IJM-10-2019-0458

Best, S. J. (2021, June 10-12). The future of work: Remote work in the emerging new normal. *The Business and Management Review, 12*(1), 284-291. Retrieved from https://cberuk.com/cdn/conference _proceedings/2021-08-22-16-33-07-PM.pdf

Blumberga, S., & Berga, S. (2022, March 16). Personnel loyalty, work-life balance during remote work. *International Conference on Innovations in Science and Education (Social Sciences)* (pp. 20-27). Prague, Czech Republic. http://www.iseic.cz/

Boccoli, G., Sestino, A., Gastaldi, L., & Corso, M. (2022). The impact of autonomy and temporal flexibility on individuals' psychological well-being in remote settings. *Sinergie: Italian Journal of Management, 40*(2), 327-349. https://doi.org/10.7433/s118.2022.15

Brown, A. M. (2021). Working parents post pandemic: Reimagining remote work after covid-19. *Lerner Center for Public Health Promotion, 53*, 1-5. https://www.lernercenter.syr.ed

Budhrani, K., Martin, F., Malabanan, O., & Espiritu, J. L. (2021). How did parents balance it all? Work-from-home parents' engagement in academic and support roles during remote learning. *Journal of Online Learning Research, 7*(2), 153-184.

Cambridge Dictionary. (n.d). Investment. *In Cambridge dictionary.com*. Retrieved March 14, 2023, from https://dictionary.cambridge.org/dictionary/english/investment

Cambridge Dictionary. (n.d). State. *In Cambridge dictionary.com*. Retrieved March 14, 2023, from

https://dictionary.cambridge.org/dictionary/english/state

Cannito, M., & Scavarda, A. (2020). Childcare and remote work during the covid-19 pandemic. Ideal worker model, parenthood and gender inequalities in Italy. *Italian Sociological Review, 10*(3S), 801-820. https://doi.org/10.13136/isr.v10i3s.399

Carreri, A., & Dordoni, A. (2020). Academic and research work from home during the covid-19 pandemic in Italy: A gender perspective. *Italian Sociological Review, 10*(3S), 821-845. https://doi.org/10.13136/isr.v10i3s.400

Carvalho, V. S., Santos, A., Ribeiro, M. T., & Chambel, M. J. (2021). Please, do not interrupt me: Work-family balance and segmentation behavior as mediators of boundary violations and teleworkers' burnout and flourishing. *Sustainability, 13*(7339), 1-15. https://doi.org/10.3390/su13137339

Cekuls, A., Malmane, E., & Bluzmanis, J. (2017, May 18-20). The impact of remote work intensity on perceived work-related outcomes in ICT sector in Latvia. *9th International Scientific Conference: New Challenges of Economic and Business Development - 2017. Digital Economy* (pp. 96-107). Riga, Latvia.

Chaturvedi, S. (2015). *Introduction to theory of machines*, pp. 1-8. Research Gate. https://doi.org/10.13140/RG.2.1.3347.4727

Chen, J. (2022). *Equilibrium price: Definition, types, example and how to calculate.* Investopedia. https://www.investopedia.com/terms/e/equilibrium.asp

Chu, A. M. Y., Chan, T. W. C., & So, M. K. P. (2022). Learning from work-from-home issues during the covid-19 pandemic: Balance speaks louder than words. *PLOS ONE 17*(1), e0261969, 1-15. https://doi.org/10.1371/journal.pone.0261969

Clark, S. C. (2000). Work/family border theory: A new theory of work-family balance. *Human Relations, 53*(6), 747-770. https://doi.org/10.1177/0018726700536001

Como, R., Hambley, L., & Domene, J. (2021). An exploration of work-life wellness and remote work during and beyond covid-19. *Canadian Journal of Career Development/Revue Canadiene de Développement de Carrière, 20*(1), 46-56. Retrieved from https://cjcd-rcdc.ceric.ca/index.php/cjcd/article/view/92

Condon, E. (2021). *A quantitative study on the effects of covid-19 related remote working upon department of social protection staff with particular regard to well-being, work/life balance, and motivation.* [Master's dissertation, National College of Ireland]. Retrieved from NORMA eResearch @NCI Library. https://norma.ncirl.ie/5364/

Dubin, R. (1978). *Theory building* (Rev. ed.). New York: Free Press.

Dunatchik, A., Gerson, K., Glass, J., Jacobs, J., & Stritzel, H. (2021). Gender, parenting, and the rise of remote work during the pandemic. Implications for domestic inequality in the United States. *Gender & Society, 35*(2), 194-205. https://doi.org/10.1177/08912432211001301

Dunn, D. S., & McMinn, J. G. M. (2021). The work-life balance of academic psychologists: Evidence and anecdote. *Canadian Psychology / Psychologie Canadienne, 62*(4), 352-360. https://doi.org/10.1037/cap0000281

Elbaz, S., Richards, J. B., & Savard, Y. P. (2022). Teleworking and work-life balance during the covid-19 pandemic: A scoping review. *Canadian Psychology / Psychologie Canadienne*, Advance Online Publication, 1-38. https://doi.org/10.1037/cap0000330

Emma, V. (2021). *Remote work and its impacts on occupational wellbeing.* [Master's dissertation, Vaasan Ammattikorkeakoulu University of Applied Sciences]. Theseus. https://www.theseus.fi/handle/10024/507582

Encyclopedia Britannica. (n.d). Stimulus. *In Encyclopedia britannica.* Retrieved March 23, 2023, from https://www.britannica.com/dictionary/stimulus

Eriksson, A., Dellve, L., Williamsson, A., & Skagert, K. (2022). How conditions and resources connected to digital management systems and remote work are associated with sustainable work. *International Journal of Environmental Research and Public Health, 19*(15731), 1-11. https://doi.org/10.3390/ijerph192315731

Felstead, A., & Henseke, G. (2017). Assessing the growth of remote working and its consequences for effort, wellbeing and work-life balance. *New Technology, Work and Employment, 32*(3), 195-212.

Ferrara, B., Pansini, M., De Vincenzi, C., Buonomo, I., & Benevene, P. (2022). Investigating the role of remote

working on employees' performance and well-being: An evidence-based systematic review. *International Journal of Environmental Research and Public Health, 19* (12373), 1-12. https://doi.org/10.3390/ijerph191912373

Ferreira, R., Pereira, R., Bianchi, I. S., & da Silva, M. M. (2021). Decision factors for remote work adoption: Advantages, disadvantages, driving forces and challenges. *Journal of Open Innovation: Technology, Market, and Complexity, 7*(70), 1-24. https://doi.org/10.3390/joitmc7010070

Gandrita, D. M., Gandrita, A. S., & Rosado, D. P. (2022). Overcoming remote leadership challenges: Lessons learned from covid-19. *Journal of Business and Management Studies, 4*(4), 170-183. https://doi.org/10.32996/jbms.2022.4.4.27

García-González, M. A., Torrano, F., & García-González, G. (2020). Analysis of stress factors for female professors at online universities. *International Journal of Environmental Research and Public Health, 17*(2958), 1-13. https://doi.org/10.3390/ijerph17082958

Gigauri, I. (2020). Remote working concerns during the covid-19 pandemic. *International Journal of Social Science and Economic Research, 05*(10), 2803-2818. https://doi.org/10.46609/IJSSER.2020.v05i10.005

Gigi, G. S., & Sangeetha, M. S. J. (2020). Impact of remote working on employees in IT industry. *Journal of Contemporary Issues in Business and Government, 26*(2), 1-8. https://doi.org/10.47750/cibg.2020.26.02.072

Golden, T. D., Veiga, J. F., & Dino, R. N. (2008). The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face or having access to communication-enhancing technology matter? *Journal of Applied Psychology, 93*(6), 1412-1421. https://doi.org/10.1037/a0012722

Grant, C., Wallace, L. M., & Spurgeon, P. C. (2013). An exploration of the psychological factors affecting remote e-worker's job effectiveness, well-being and work-life balance. *Employee Relations, 35*(5), 527-546. https://doi.org/10.1108/ER-08-2012-0059

Greenblatt, E. (2002). Work/life balance: Wisdom or whining? *Organizational Dynamics, 31*(2), 177-193. https://doi.org/10.1016/S0090-2616(02)00100-6

Greenhaus, J. H., & Allen, T. D. (2010). Work-family balance: A review and extension of the literature. In L. Tetrick & J. C. Quick (Eds.), *Handbook of occupational health psychology* (2nd ed., pp. 165-183). Washington, DC: American Psychological Association.

Greenhaus, J. H., Collins, K. M., & Shaw, J. D. (2003). The relation between work-family balance and quality of life. *Journal of Vocational Behavior, 63*(3), 510-531. https://doi.org/10.1016/S0001-8791(02)00042-8

Grzywacz, J. G., & Carlson, D. S. (2007). Conceptualizing work-family balance: Implications for practice and research. *Advances in Developing Human Resources, 9*(4), 455-471. https://doi.org/10.1177/1523422307305487

Haar, J. M. (2013). Testing a new measure of work-life balance: A study of parent and non-parent employees from New Zealand. *The International Journal of Human Resource Management, 24*(17), 3305-3324. https://doi.org/10.1080/09585192.2013.775175

Haar, J. M., Brougham, D., Roche, M. A., & Barney, A. (2017). Servant leadership and work engagement: The mediating role of work-life balance. *New Zealand Journal of Human Resources Management, 17*(2), 56-72. https://hdl.handle.net/10289/11707

Haar, J. M., Russo, M., Sune, A., & Ollier-Malaterre, A. (2014). Outcomes of work-life balance of job satisfaction, life satisfaction and mental health: A study across seven cultures. *Journal of Vocational Behavior, 85*(3), 361-373. https://doi.org/10.1016/j.jvb.2014.08.010

Hardill, I., & Green, A. (2003). Remote working: Altering the spatial contours of work and home in the new economy. *New Technology Work and Employment, 18*(3), 212-222. https://doi.org/10.1111/1468-005X.00122

Harmon-Jones, E., & Mills, J. (2009). An introduction to cognitive dissonance theory and an overview of current perspectives on the theory. In *Cognitive dissonance: Reexamining a pivotal theory in psychology* (2nd Eds.). https://doi.org/10.1037/0000135-001

Heider, F. (1946). Attitudes and cognitive organization. *The Journal of Psychology, 21,* 107-112. https://doi.org/10.1080/00223980.1946.9917275

Hjlmsdttir, A., & Bjarnadttir, V. S. (2021). "I have turned into a foreman here at home": Families and work-life balance in times of covid-19 in a gender equality paradise. *Gender Work and Organization, 28*, 268-283. https://doi.org/10.1111/gwao.12552

Hobfoll, S. E. (2011). Conservation of resource caravans and engaged settings. *Journal of Occupational and Organizational Psychology, 84*, 116-122. https://doi.org/10.1111/j.2044-8325.2010.02016.x

IGI Global. (n.d). Cognitive system. *In IGI-global.com*. Retrieved March 20, 2023, from https://www.igi-global.com/dictionary/social-distributed-cognition-collaborative-learning/4258

International Labor Organization. (2020, June 05). *Covid-19: Guidance for labor statistics data collection: Defining and measuring remote work, telework, work at home and home-based work* (ILO Technical Note). Retrieved April 15, 2022, from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/publication/wcms_747075.pdf

Irawanto, D., Novianti, K. R., & Roz, K. (2021). Work from home: Measuring satisfaction between work-life balance and work stress during the covid-19 pandemic in Indonesia. *Economies, 9*(96), 1-13. https://doi.org/10.3390/economies9030096

Iqbal, S., Suh, J., Czerwinski, M., Mark, G., & Teevan, J. (2018). *Remote work and well-being*. In NFOW '20: The 2020 Workshop on the New Future of Work, August 3-5, 2020 (Virtual). ACM, New York, NY, USA. https://doi.org/10.1145/1122445.1122456

Jamal, M. T., Alalyani, W. R., Thoudam, P., Anwar, I., & Bino, E. (2021). Telecommuting during covid 19: A moderated-mediation approach linking job resources to job satisfaction. *Sustainability, 13*(11449), 1-17. https://doi.org/10.3390/su132011449

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). Big five inventory (BFI). [Database Record]. *APA PsycTests*. https://doi.org/10.1037/t07550-000

Juchnowicz, M., & Kinowska, H. (2021). Employee well-being and digital work during the covid-19 pandemic. *Information, 12*(293), 1-13. https://doi.org/10.3390/info12080293

Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology, 90*(2), 257-268. https://doi.org/10.1037/0021-9010.90.2.257

Kalliath, T., & Brough, P. (2008). Work-life balance: A review of the meaning of the balance construct. *Journal of Management & Organization, 14*(3), 323-327. https://doi.org/10.5172/jmo.837.14.3.323

Kaushal, R. (2021). *Covid-19 and remote work: Experiences of workers in New Zealand.* [Master's dissertation, Auckland University of Technology, New Zealand]. Retrieved from Auckland University of Technology Library. http://hdl.handle.net/10292/14210

Khan, A. N. (2021). A diary study of psychological effects of misinformation and covid-19 threat on work engagement of working from home employees. *Technological Forecasting & Social Change, 171*, 1-10. https://doi.org/10.1016/j.techfore.2021.120968

Khan, M. (n.d). *Theory of machines*. NIT, Srinagar. Retrieved March 5, 2023, from https://nitsri.ac.in/deapartment/mechanical%20engineering/mec_403_part_1_fundamental_of_kinematics_&_mechanism.pdf

Kirchmeyer, C. (2000). "Work-life initiatives: Greed or benevolence regarding workers' time?", In C. L. Cooper & D. M. Rousseau (Eds.), *Trends in organizational behavior* (Vol. 7., pp. 79-93). John Wiley & Sons Ltd.

Landolfi, A., Barattucci, M., De Rosa, A., & Lo Presti, A. (2021). The association of job and family resources and demands with life satisfaction through work-family balance: A longitudinal study among Italian schoolteachers during the covid-19 pandemic. *Behavioral Sciences, 11*(136), 1-16. https://doi.org/10.3390/bs11100136

Lister, K. (2020, October 08). *Owl labs and global workplace analytics' state of remote work report: 1 in 2 people won't return to jobs that don't offer remote work after covid-19.* PR Newswire. https://www/prnewswire.com/news-releases/owl-labs-global-workplace-analytics-state-of-remote-work-report-1-in-2-people-wont-return-to-jobs-that-dont-offer-remote-work-after-covid-19-301148456.html

Lonska, J., Mietule, I., Litavniece, L., Arbidane, I., Vanadzins, I., Matisane, L., & Paegle, L. (2021). Work-life balance of the employed population during the emergency situation of covid-19 in Latvia. *Frontiers in Psychology, 12*(682459), 1-15. https://doi.org/10.3389/fpsyg.2021.682459

Maghlaperidze, E., Kharadze, N., & Kuspliak, H. (2021). Development of remote jobs as a factor to increase labor efficiency. *Journal of Eastern European and Central Asian Research, 8*(3), 337-348. https://doi.org/10.15549/jeecar.v8i3.669

Manzoor, S., & Hamid, S. (2021). Work life balance during covid-19 lockdown: Experiences of women academicians of Kashmir. *Library Philosophy and Practice (e-journal), 5270*, 1-8. https://digitalcommons.unl.edu/libphilprac/5270

Martin, L. (2021). *How remote working impacts the performance, motivation, and well-being of the Irish recruitment industry.* [Master's dissertation, National College of Ireland, Ireland]. Retrieved from NORMA eResearch @NCI Library. https://norma.ncirl.ie/id/eprint/5328

Mesquita, A., Oliveira, A., Oliveira, L., & Sequeira, A. (2020, October 16-17). *Are we ready for remote work? Preliminary results from Portugal.* 20.ª Conferência da Associação Portuguesa de Sistemas de Informação (CAPSI'2020), Porto, Portugal. AIS Electronic Library (AISeL). https://aisel.aisnet.org/capsi202

Mihalca, L., Irimiaş, T., & Brendea, G., (2021). Teleworking during the covid-19 pandemic: Determining factors of perceived work productivity, job performance, and satisfaction. *Amfiteatru Economic, 23*(58), 620-636. https://doi.org/10.24818/EA/2021/58/62

Mininni, G., & Manuti, A. (2020). Pleasures and pains about remote work experience during the covid-19 global pandemic: A diatextual approach. *Revista de Estudos Linguísticos da Univerdade do Porto - Nº Especial*, 221-244. https://ojs.letras.up.pt/index.php/EL/article/view/10104/9279

Morgeson, F. P., & Humphrey, S. E. (2006). The work design questionnaire (wdq): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology, 91*(6), 1321-1339. https://doi.org/10.1037/0021-9010.91.6.1321

Muralidhar, B., Prasad, K. D. V., & Mangipudi, M. R. (2020). Association among remote working concerns and challenges on employee work-life balance: An empirical study using multiple regression analysis with reference to international agricultural research institute, Hyderabad. *International Journal of Advanced Research in Engineering and Technology, 11*(6), 281-297. https://doi.org/10.34218/IJARET.11.6.2020.025

Navarro, J. L., & Helms, H. M. (2020). After-hours remote work and family life: The impact of work-extending technology. In S. Sweet (Ed.), *Work and family encyclopedia*. Work and family researchers network.

Ng, M. A., Naranjo, A., Schlotzhauer, A. E., Shoss, M. K., Kartvelishvili, N., Bartek, M., … & Silva, C. (2021). Has the covid-19 pandemic accelerated the future of work or changed its course? Implications for research and practice. *International Journal of Environmental Research and Public Health, 18*(10199), 1-28. https://doi.org/10.3390/ijerph181910199

Nguyen, M. H., & Armoogum, J. (2021). Perception and preference for home-based telework in the covid-19 era: A gender-based analysis in Hanoi, Vietnam. *Sustainability, 13*(3179), 1-16. https://doi.org/10.3390/su13063179

Nippert-Eng, C. E. (1996). Calendars and keys: The classification of "home" and "work*". Sociological Forum, 11,* 563-582. https://doi.org/10.1007/BF02408393

Parham, S., & Rauf, M. A. (2020). Covid-19 and obligatory remote working in heis: An exploratory study of faculties' work-life balance, well-being and productivity during the pandemic. *International Journal of Economics, Commerce and Management, VIII*(12), 384-400. Retrieved from https://ijecm.co.uk/

Perrigino, M. B., & Raveendhran, R. (2020). Managing remote workers during quarantine: Insights from organizational research on boundary management. *Behavioral Science & Policy*, 1-8. Retrieved from https://behavioralpolicy.org/journal_issue/covid-19/

Rai, S., Megyeri, E., & Tabajdi, G. (2022, October 17-19). Remote work and work-life balance: Experience from covid-19 in a cross-cultural perspective. *5th Nordsci International Conference. Sociology and Healthcare* (Book 1, Vol. 5, 193-200). Sofia, Bulgaria. https://doi.org/10.32008/NORDSCI2022/B1/V5

Ramadhan, N., & Wijaya, N. P. (2021). The effect of work life balance on motivation in implementing wfh policies during the covid-19 pandemic. *Turkish Journal of Computer and Mathematics Education, 12*(8), 1287-1292. https://www.turcomat.org/index.php/turkbilmat/article/download/3144/2703

Rapo, N. (2022). *Work-life balance in remote working conditions.* [Master's dissertation, University of Vassa]. Osuva Open Science. https://osuva.uwasa.fi/handle/10024/13942

Rathnaweera, D., & Jayathilaka, R. (2021). In employees' favour or not? The impact of virtual office platform on

the work-life balances. *PLOS ONE, 16*(11), e0260220, 1-20. https://doi.org/10.1371/journal.pone.0260220

Robak, E. (2022). Work-life relations and remote work management of the generation z employees. Scientific Papers of Silesian University of Technology. *Organization and Management Series, 163*, 469-484. https://doi.org/10.29119/1641-3466.2022.163.29

Rodríguez-Modroño, P., & López-Igual, P. (2021). Job quality and work-life balance of teleworkers. *International Journal of Environmental Research and Public Health, 18*(3239), 1-13. https://doi.org/10.3390/ijerph18063239

Rudnicka, A., Newbold, J. W., Cook, D., Cecchinato, M. E., Gould, S. J. J., & Cox, A. L. (2020). *Eworklife: Developing effective strategies for remote working during the covid-19 pandemic.* The New Future of Work Online Symposium: Online. UCL Discovery. https://discovery.ucl.ac.uk/id/eprint/10106475/

Safeopedia. (n.d). Resource. *In Safeopedia.com*. Retrieved March 14, 2023, from https://www.safeopedia.com/definition/2945/resource

Sandoval-Reyes, J., Idrovo-Carlier, S., & Duque-Oliva, E. J. (2021). Remote work, work stress, and work-life during pandemic times: A Latin America Situation. *International Journal of Environmental Research and Public Health, 18*(7069), 1-12. https://doi.org/10.3390/ijerph18137069

Scheibe, S., De Bloom, J., & Modderman, T. (2022). Resilience during crisis and the role of age: Involuntary telework during the covid-19 pandemic. *International Journal of Environmental Research and Public Health, 19*(1762), 1-21. https://doi.org/10.3390/ijerph19031762

Sengupta, D., & Al-Khalifa, D. (2022). Pandemic imposed remote work arrangements and resultant work-life integration, future of work and role of leaders-A qualitative study of Indian millennial workers. *Administrative Sciences, 12*(162), 1-21. https://doi.org/10.3390/admsci12040162

Shahriar, S. H. B., Alam, M. S., Arafat, S., Khan, M. R., Nur, J. H., & Khan, S. I. (2022). Remote work and changes in organizational hr practices during corona pandemic: A study from Bangladesh. *Vision,* 1-14. https://doi.org/10.1177/09722629221115234

Shirmohammadi, M., Au, W. C., & Beigi, M. (2022). Remote work and work-life balance: Lessons learned from the covid-19 pandemic and suggestions for hrd practitioners. *Human Resource Development International, 25*(2), 163-181. https://doi.org/10.1080/13678868.2022.2047380

Silungwe, S. (2020). The effect of remote working on employees' performance amidst corona virus pandemic: A case of selected organizations in Chipata district, Zambia. *International Journal of Innovative Science and Research Technology, 5*(12), 1-6. Retrieved from http://bitly.ws/9nMw

Skórska, A. (2021, June 22-23). Remote work and work-family balance during the covid-19 pandemic. *XV International Scientific Conference. Analysis of International Relations 2021. Methods and Models of Regional Development* (pp. 154-162). Katowice, Poland.

Sokolic, D. (2022, February 24-25). Remote work and hybrid work organizations. Economic and social development. *78th International Scientific Conference on Economic and Social Development* (pp. 202-213). Aveiro, Portugal.

Spagnoli, P., Manuti, A., Buono, C., & Ghislieri, C. (2021). The good, the bad and the blend: The strategic role of the "middle leadership" in work-family/life dynamics during remote working. *Behavioral Science, 11*(112), 1-17. https://doi.org/10.3390/bs11080112

Swanson, R. A. & Chermack, T. J. (2013). *Theory building in applied disciplines*. Berret-Koehler Publishers Inc. San Francisco: California.

Syrek, C., Kühnel, J., Vahle-Hinz, T., & de Bloom, J. (2021). Being an accountant, cook, entertainer and teacher-All at the same time: Changes in employees' work and work-related well-being during the coronavirus (covid-19) pandemic. *International Journal of Psychology,* 1-13. https://doi.org/10.1002/ijop.12761

Tengku Mahamad, T. E., Abdul Ghani, W. S., De Luna, D. B., & Rivadeneira, L. (2021). Managing emotions while working from home during covid-19 pandemic: Working mothers with young children perspective. *ESTEEM Journal of Social Sciences and Humanities, 5*(2), 34-48.

Tokdemir, G. (2022). Software professionals during the covid-19 pandemic in Turkey: Factors affecting their mental well-being and work engagement in the home-based work setting. *The Journal of Systems & Software, 188*(111286), 1-15. https://doi.org/10.1016/j.jss.2022.111286

Toracco, R. J. (2005). Writing integrative literature review. Guidelines and examples. *Human Resource Development Review, 4*(3), 356-367. https://doi.org/10.1177/1534484305278283

Travers, M. (2020, April 24). *What percentage of workers can realistically work from home? New data from Norway offer clues*. Forbes. https://www.forbes.com/sites/traversmark/2020/04/24/what-percentage-of-workers-can-realistically-work-from-home-new-data-from-norway-offer-clues/amp/

Vernon, D. (2021). Cognitive system. In K. Ikeuchi (Ed), *Computer vision*: *A reference guide* (pp. 157-164). Springer, Cham. https://doi.org/10/1007/978-3-030-63416-2_82

Waight, C. L., Kjerfve, T. N., Kite, A., & Smith, B. (2022). Connecting and relating in Brazil: Implications of remote work. *Human Resource Development International,* 1-23. https://doi.org/10.1080/13678868.2022.2048435

Waller, A. D., & Ragsdell, G. (2012). The impact of e-mail on work-life balance. *Aslib Proceedings, 64*(2), 154-177. https://doi.org/10.1108/00012531211215178

Wigert, B. (2022, March 15*). The future of hybrid work: 5 key questions answered with data.* Workplace. Gallup. https://www.gallup.cpm/workplace/390632/future-hybrid-work-key-questions-answered-data.aspx

Your Dictionary. (n.d). Equilibrium. *In Your dictionary.com.* Retrieved May 15, 2022, from https://www.yourdictionary.com/equilibrium
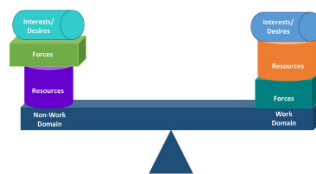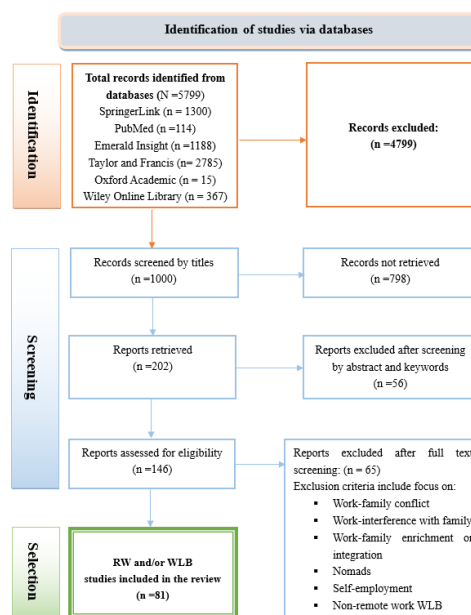
Appendix A

Work-Life Balance

Figure A1. Work-life balance

Appendix B

The Literature Search Procedure

Appendix C

Remote Work and Work-Life Balance Studies

No	Author & Year	Methodology & Design	Sample	Demographics & Population	Location
1	Carreri & Dordoni (2020)	Qualitative: Unstructured in-depth and non-directive interviews.	10 academics	5 males and 5 females; ages between 33 and 49 years; 3 singles and 7 partnered.	Italy
2	Adisa et al. (2021)	Qualitative: Interviews and interpretive-constructivist and constructivist-phenomenologist approach.	26 mothers	9 single mothers, 2 divorced mothers, and 15 mothers with partners.	UK
3	M. García-González et al. (2020)	Delphi Technique	14 experts; 7 occupational health and safety technicians and 7 university professors.	2 males and 12 females; 3 between 30-40 years, 9 between 40-50 years, and 2 above 50 years.	Spain
4	Syrek et al. (2021)	Mixed-Methods: Longitudinal study with monthly quantitative measurements and qualitative data from January to May 2020.	(N = 253-516), Sample from a large multinational organization.	72% male; 49% had a university degree; average age of 43.2 years (SD = 10.5); 57% living with children, and 80% of the children were under 17 years of age.	The Netherlands
5	Cannito & Scavarda (2020)	Qualitative: Online in-depth interviews	10 heterosexual couples with children.	Ages between 28-40 years; children ages between 10 months and 8 years.	Italy
6	Juchnowicz & Kinowska (2021)	Quantitative: Survey	1,000 workers: 44% worked remotely, out of which 10% worked full-time remotely and 13% worked remotely less than 1 day per week.	55% male and 45% female; 52% with higher education; 77% had employment contract and 77% worked in private sector.	Poland
7	T. D. Allen et al. (2021)	Quantitative: Longitudinal panel design with five waves of data collection within three months.	155 remote workers including teachers, engineers, IT directors, sales managers, and administrative assistants.	59% male; 85% white; 54% unmarried; 63% without children; average age was 37 years (SD = 9.28).	USA
8	Rathnaweera & Jayathilaka (2021)	Quantitative: Survey	270 employees from various sectors.	48.1% male and 51.9% female; 51.5% with degrees; 3.7% with post graduate degrees; 56.7% were married and 43.3% were single.	Sri Lanka
9	Rodríguez-Modroño & López-Igual	Quantitative: Sixth European Working Conditions Survey.	35,765 workers from EU28 countries including the UK.	NS	Europe

	(2021)				
10	Chu et al. (2022)	Quantitative: Survey	500 full-time employees	42.4% male and 57.6% female; 27.6% on manager grade and above and 72.4% on non-manager grade and below.	Hong Kong
11	Carvalho et al. (2021)	Quantitative: Survey	456 teleworkers: 53.3% worked in consultancy services and 30% in health services.	73.5% were females, 53.3% were married or in a stable relationship and 50% without children.	Portugal
12	Mininni & Manuti (2020)	Qualitative: In-depth interviews and a diatextual approach (Discursive texture).	18 workers from public and private organizations: service sector, teaching, call center operation, information technology and brokerage.	9 males and 9 females; ages between 29 and 55 years.	Italy
13	Sandoval-Reyes et al. (2021)	Quantitative: Survey	1,285: 54.8% from Columbia, 39.7% from Ecuador, 5.5% from other Latin American countries.	29.1% average age; 65.9% female; 34.1% male; 68.6% married; 49.3% had children; 33.8% college degree holders; 60.8% graduate degree holders.	Latin America
14	Aczel et al. (2021)	Quantitative: Survey	704 Academics: 29.69% full professor, 24.43% associate professor, and 17.90% assistant professor.	50.57% female and 48.01% male.	Hungary
15	Scheibe et al. (2022)	Quantitative: Survey	1,715 University employees; 52% management and support staff.	62% female and 38% male; 5% were 25 years and younger, 31% were 26-35 years, 24% were 36-45 years, 22% were 46-55 years, and 18% were 56 years or older; 24% lived alone and 76% lived with other household members.	The Netherlands
16	Jamal et al. (2021)	Quantitative: Survey	328 employees in the IT sector in the national capital region.	203 males and 125 females; 13% living away from their family.	India
17	Landolfi et al. (2021)	Quantitative: Survey data collected twice at Time 1 and Time 2.	357 Teachers	37.7% men and 61.3% women; 81.6% married or cohabiting; 14.7% had no children and 86.3% had at least one child.	Italy
18	Tokdemir (2022)	Quantitative: Survey	321 Software Professionals: 16% engineers, 33%	69% were male with an average age of	Turkey

			specialists, 23% senior specialists, 18% managers, and 6% directors.	35.1; 31% were female with an average age of 33.4; 48% were married and 52% were single; 61% lived with their family; 21% lived alone; 13% lived with elder family members.	
19	Irawanto et al. (2021)	Quantitative: Survey	472: 71.9% worked from home 1-2 months before the study.	64.2% male and 35.8% female; 72.7% married; 50.4% with a bachelor degree; 47% with master/doctoral degrees.	Indonesia
20	Manzoor & Hamid (2021)	Qualitative: Face to face and telephone interviews.	25 women academicians from colleges and universities.	Participants had at least one child below the age of 15.	India
21	Ramadhan & Wijaya (2021)	Quantitative: Survey	69 employees working in telecommunications.	NS	Indonesia
22	Tengku Mahamad et al. (2021)	Qualitative: Semi-structured face-to-face online interviews.	20 workers	Mothers with children from 0 to 5 years old.	Malaysia
23	Waight et al. (2022)	Qualitative: Phenomenological design and semi-structured interviews.	14 MNCs employees in oil and gas, nutrition and health, energy, and communication.	6 males and 8 females; 4 singles, 8 married, 1 divorced; ages between 20 to mid-50.	Brazil
24	Abolina & Veselova (2022)	Quantitative: Survey	538 Latvian employees working in education, marketing, information technology, and finance.	Participants included baby boomers and generations X, Y, and Z.	Latvia
25	Robak (2022)	Quantitative: Survey	226 Generation Z	50.44% women and 48.23% men; 86.28% with professional experience; 48.67% with remote work experience.	Poland
26	Blumberga & Berga (2022)	Quantitative: Survey	103 full time employees in the manufacturing industry.	8% men; 40% were between 35-44 years, and 36% were between 45-54 years.	Latvia
27	Maghlaperidze et al. (2021)	Quantitative: Survey	528 employees of insurance companies.	2.65% were senior managers, 9.47% were middle managers, and 87.88% were specialists.	Georgia
28	Mesquita et al. (2020)	Quantitative: Exploratory survey-based research	305 participants: 80% working remotely.	73.4% female and 26.6% male; 39.7% between 40-49 years; 24.6%	Portugal

				between 50-59 years. Ages between 26 and 60 years; 2 males and 5 females; 5 had been working remotely before COVID-19.	
29	Rapo (2022)	Qualitative: Abductive methodological approach and semi-structured interviews.	7 employees from IT, HR, and Finance.		Finland
30	Shahriar et al. (2022)	Qualitative: Open-ended in-depth interviews.	17 employees working in banks, non-bank financial organizations, IT firms, fast-moving consumer goods (FMCGs) and ready-made garments.	7 females and 10 males; ages between 25-40 years.	Bangladesh
31	K. K. Allen (2021)	Mixed-Methods: Survey and semi-structured interviews conducted virtually.	414 survey participants and 41 interview participants in a Silicon Valley Technology firm.	NS	USA
32	Boccoli et al. (2022)	Quantitative: Survey	1,550 Firefighters: 78% in management/logistic unit and 22% in IT unit.	51% women and 49% men; 49% between 50 and 59 years.	Italy
33	Gigi & Sangeetha (2020)	Quantitative: Survey	61 remote workers in the IT industry.	52.5% female and 47.5% male; 86.9% between 18-25 years and 13.1% between 26-40 years; 98.4% unmarried; 83.6% from nuclear families and 16.4% from extended families.	India
34	Balushi et al. (2022)	Quantitative: Survey	175 Ericson employees	56.6% female and 43.4% male; 54.3% between 26-35 years and 25.7% between 36-45 years; 21.7% in middle management, and 14.9% in senior management.	Jordan
35	Condon (2021)	Quantitative: Cross-sectional survey	674 employees of a large government organization; The Department of Social Protection (DSP).	71% female and 28% male; 63% married, 18% single, 11% cohabiting; 46% had 3-4 children, 17% had 5+ children and 37% had 1-2 children, and 11% had 1+ preschoolers.	Ireland
36	Rudnicka et al. (2020)	Mixed-Methods: Survey (qualitative questionnaire) and follow-up interviews using a semi-structured approach and open-ended questions.	347 survey and 25 interview respondents.	Survey respondents: 251 females, 85 males, 3 non-binary, and 1 transgender; ages between 21-72 years (m=40,	UK

				SD=11); Interviewees: 20 females, 4 males, and 1 transgender; ages between 24-68 years (m=45, SD=12).	
37	Muralidhar et al. (2020)	Quantitative: Survey	400 employees of International Agricultural Research Institute.	60% men and 40% women; 100 between 20-29 years, 110 between 30-39 years, 120 between 40-49 years, and 70 > 49 years.	India
38	Silungwe (2020)	Mixed-Methods: Questionnaire used to collect quantitative and qualitative data.	38 employees in the Chipata District.	NS	Zambia
39	Gigauri (2020)	Quantitative: Survey	48 HR Managers	10 company directors and 6 leaders performing human resource functions and majority were heads of human resource department.	Georgia
40	Ferreira et al. (2021)	Qualitative: Semi structured interviews.	109 RW professionals	32 females and 77 males.	Portugal
41	Kaushal (2021)	Quantitative: Survey	400: 64.3% from private sector, 31.0% from public/government sector, and 4.8% from not-for-profit sector.	49.8% male, 49.8% female, and 2 'other'; age ranged from 19 to 71 years, and average age was 40.8 years (SD=14.7); average tenure was 6.4 years (SD=6.0); average work hours was 33.0 per week (SD= 11.1).	New Zealand
42	Martin (2021)	Quantitative: Survey	80 participants from the recruitment industry.	55 females and 24 males and ages between 19-65 years.	Ireland
43	Anh et al. (2022)	Quantitative: Survey	208 remote workers; 65% worked in IT as engineers and administrators and 34% worked in Building and Construction.	40.4% female and 59.6% male; 41.3% between 18 to 25 years and 33.7% between 26 to 35 years.	Vietnam
44	Becker et al. (2022)	Quantitative: Survey	239 MBA students and alumni of three U.S. universities from 37 states in the Country. 16% in finance, 16% in information technology and 13% in consumer products.	57% male and the median age range was 41-45 years (SD = 2.42).	USA
45	Budhrani et al.	Qualitative: Phenomenological	10 Parents	3 males and 7	Philippines

	(2021)	approach, semi-structured interviews and a three-step coding process.		females; ages between 30-45 years; middle class; resided in the urban city of Metro Manila; had a stable job, 5 with bachelor degrees and 4 with master degrees.	
46	Hjálmsdóttir & Bjarnadóttir (2021)	Qualitative: Daily questionnaire for both open-ended real-time diary entries and structured time-use data collected for 2 weeks.	37 mothers in heteronormative relationships.	21 mothers had two children and others had between 1 to 6 children; 14 with bachelor degrees and 18 with master degrees; 28 in paid labor and 1 studying and working.	Iceland
47	Lonska et al. (2021)	Quantitative: Survey	1,006: 48.3% worked remotely.	79.7% women and 20.3% men; 44.0% had minor children in the household.	Latvia
48	Emma (2021)	Quantitative: Survey	36 participants from an electrical household appliances retail company.	11% were managers and 89% were employees.	Finland
49	Parham & Rauf (2020)	Exploratory research using a qualitative-structured survey questionnaire with closed-ended and open-ended questions.	122 faculty members from 21 countries in Africa, Asia, North America, Europe, and Australia.	NS	Multi-Country
Pre-COVID-19 RW and WLB					
50	Cekuls et al. (2017)	Quantitative: Survey was conducted between November 2016 and January 2017.	108 remote workers from 48 ICT sector organizations. Worked remotely as follows: 31.5% worked 1 day/week, 13.0% worked 2 days/week, 10.2% worked 3 days/week, 14.8% worked 4 days/week, 30.5% = all workdays, and all respondents average = 3 days/week.	NS	Latvia
51	Grant et al. (2013)	Qualitative: Semi structured interviews.	11 remote workers from five organizations with 1-2 years of remote work experience.	Five participants had one or more children and two looked after elderly dependents on a regular basis.	UK
52	Bellmann & Hubler (2020)	Quantitative: Survey	Data from private sector organizations; Linked Personnel Panel (LPP) waves 1–3. First wave started in 2012/2013 (N=7,508). Second wave was 2014/2015 (N=7,282) and the third wave was 2016/2017 (N= 6,779).	NS	Germany
53	Felstead & Heneseke (2017)	Mixed-Methods: 1998 Workplace Employee Relations Survey (survey and interviews).	Interviews with 2,191 managers, 947 interviews with worker representatives,	NS	UK

			28,237 completed questionnaires from employees working at participating establishments. One in 10 (9.1%) reported more than 5 per cent of their workforce WFH on a regular basis. One in eight organizations had some managerial staff working from home.		

WLB

54	Haar et al. (2013)	Quantitative: Survey	1,416 employees from seven cultures: Malaysian, Chinese, New Zealand Maori, New Zealand European, Spanish, French, and Italian. 546 from collectivistic cultures (Maori, Malaysia, and China).	Average age was 37.6 years (SD=11.5); 55% female; 70% were married and 61% were parents.	Six Countries
55	Waller & Ragsdell (2012)	Mixed-Methods: Case study approach including on-line questionnaire and a 7-day diary.	37 employees of a multinational service organization based in the UK office participated in the survey. 7-day semi-structured diaries participants included 4 senior, 4 middle and 4 lower-management employees within the UK.	7-day diary study participants: 6 females and 6 males.	UK

RW/WFH/TELECOMMUTING (some mentioned WLB)

56	Nguyen & Armoogum (2021)	Quantitative: Survey	355 former students of the Faculty of Transport Economics at the University of Transport and Communications.	177 males and 178 females; 62.7% between 20-30 years; 102 without children, 36 with more than 2 children, and 39 with one child.	Vietnam
57	Mihalca et al. (2021)	Quantitative: Survey	482 employees of a large IT firm who were IT systems developers and testers; 9% team managers and 3% top managers.	53% male; average job tenure was 39.75 months (SD=43.26); mean age was 33.29 years (SD=6.95); 46% had a partner who worked full-time from home; 22% had child-care responsibilities.	Romania
58	Dunatchik et al. (2021)	Quantitative: Online poll	2,200 adults: Study focused on 478 partnered parents and 151 single parents.	NS	USA
59	D. Gandrita et al. (2022)	Qualitative: Interviews via questionnaire.	40 Participants; 67% from Portugal and 33% from other European Countries.	24 men and 16 women. 18% between 25-35 years, 40% between 36-45 years; 67% manager, director, or above;	Europe

60	Khan (2021)	Quantitative: An initial online survey followed by regular surveys for ten consecutive working days.	56 government sector teachers.	21% business professional. 48.3% female; average age was 37.2 (SD=7.66); average years of experience was 5.26 (SD = 1.8).	Pakistan
61	Sengupta & Al-Khalifa (2022)	Qualitative: Narrative inquiry and interpretivist paradigm, using in-depth interviews.	30 Millennials	15 males and 15 females; ages between 26 to 42 years.	India
62	Eriksson et al. (2022)	Quantitative: An analytical cross-sectional study using web-based questionnaire.	484 white collar employees from two private companies working in purchasing, IT, research and development, and safety and health.	38% women and 61% men.	Sweden
63	Iqbal et al. (2018)	Quantitative: Survey	224 responses: 33.7% engineer/technologist, 19.0% researcher, 13.2% academia/educator, 8.4% manager, and 6.3% in marketing/public relations.	29.4% were 36-45 years, 25.1% were 26-35 years, 22.5% were 46-55 years, and 13.4% were 18-25 years; 42% male, 40.6% female, and 0.5% were non-binary.	USA