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Moderating Effect of Age and Supervisory Status on Telework and Job Satisfaction Among Federal Employees

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Abstract

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by

Chelsea Eckert

MA, Adler University, 2018

BS, South University, 2016

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The postpandemic U.S. federal workforce has experienced shifts in policies and practices about telework, with mixed empirical evidence on its relationship with job satisfaction. Federal government leaders must understand this impact on telework and job satisfaction. Guided by self-determination theory and socioemotional selectivity theory, the purpose of this quantitative correlational study was to examine the relationship between telework usage and job satisfaction among federal employees, with age and supervisory status as moderating variables. Secondary data were from the 2023 Federal Employee Viewpoint Survey, with approximately 625,000 participants. The results of the multiple linear regression were statistically significant, $F(11, 552{,}670) = 1610.63$, $p < .001$, $R^2 = .031$. Telework showed a small but significant negative association with job satisfaction. Age and supervisory status were independently positive predictors. Interaction analyses revealed that age buffered the negative telework effect across all telework categories. Supervisory status moderated only the choose-not-to-telework and infrequent groups. Telework and higher satisfaction were not universally linked. Nonteleworkers reported the greatest satisfaction after controlling for telework frequency, age, and supervisory status. Findings underscore the variance of telework impact by age and role, identifying hybrid workers, younger employees, and nonsupervisors as vulnerable subgroups. Recommendations include tailored hybrid-work guidelines, mentorship for early-career teleworkers, and virtual leadership training. The implications for positive social change include the potential for federal government leaders and personnel management to adopt these strategies to sustain morale while preserving the benefits of teleworking flexibility.

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Table of Contents

List of Tables

Chapter 1: Introduction to the Study

Introduction

The COVID-19 pandemic affected work behaviors, preferences, and business operations due to the lockdown and stress from fear of contracting the disease, necessitating a shift in how work was done (Ahmed & Singh, 2023). Research conducted on work modalities and environments prior to the pandemic was no longer presumed applicable to the modern, postpandemic workplace due to the intrinsic shifts in workers and the lasting effects of how companies navigated the pandemic (Torres & Orhan, 2023). The lockdown forced employees to telework, an arrangement that had existed since the 1970s but varied in practice along different characteristics of workers and the work itself, such as demographics, environmental factors, or the required work tasks (Barrero et al., 2023; Brown & Tousey, 2023). In the postpandemic world, organizations were looking to understand how teleworking impacted job attitudes, such as job satisfaction and the potential factors that may have influenced the relationship, such as age or supervisory status.

Job satisfaction had been found to be connected to positive work outcomes such as organizational commitment and improved performance; telework was positively correlated with job satisfaction (Ahmed & Singh, 2023; Nugraha et al., 2022). However, teleworking where there was not satisfactory organizational, technological, or even familial support for the worker resulted in job stress, which negatively correlated with job satisfaction (Ahmed & Singh, 2023). There was no single broad solution to meet those needs sufficiently for every individual, as some workers prefer greater autonomy, which

telework provided, whereas others may have needed more connectedness (Doberstein & Charbonneau, 2022). Individual differences between workers, even granular personality or demographic differences, impacted how telework translated to job satisfaction, necessitating continued study into moderators of the relationship.

One of the possible individual differences that impacted workers' job satisfaction while working from home was age, with younger and older employees reporting varying needs for organizations to allow autonomy, provide feedback, give rewards, or provide other resources such as technological or supervisory support (Amarnani et al., 2023; Kollmann et al., 2020). While there was no consistent evidence of any age group reporting greater or less job satisfaction across the population, there was evidence that supervisory status was positively associated with job satisfaction (Locke, 2020). The autonomy, greater organizational support, and higher pay were all attributed to job satisfaction in supervisors (Andrade et al., 2021). Supervisors' ability to impact their subordinates in turn, to include promoting or denying telework, suggested supervisory status could be a powerful moderator in the relationship between telework and job satisfaction (Lembrechts et al., 2018; Wallis et al., 2021).

Telework policies fluctuated in the postpandemic federal government, with White House-directed return-to-office policies enforced in 2023, balanced with requirements to promote a flexible and agile workforce, driving potential for disparities in policy (Federal News Network, 2023; Office of Personnel Management, n.d.-a). Determining how best to navigate that balance required federal agencies to understand the impacts of all relevant factors, such as telework and job satisfaction. The Office of Personnel Management

(OPM), the oversight agency over the federal personnel system, gathered sentiment data from federal employees annually in the Federal Employee Viewpoint Survey (FEVS) on many workplace topics and workforce job attitudes (OPM, 2023a). I used the resulting data from the 2023 FEVS to explore the relationships between telework and job satisfaction, with age and supervisory status as possible moderators, to contribute to the understanding of how telework was tied to job satisfaction in federal employees when age and supervisory status are considered as moderators.

Background

Research was necessary to understand the shifts in workforce sentiment that happened during and post-COVID-19 pandemic. Telework during the pandemic differed from pre-pandemic and postpandemic flexibility offerings as it was not discretionary and did not consider preparedness for working in a remote environment or personal worker preferences in work location (Ahmed & Singh, 2023). The COVID-19 pandemic impacted societal norms and expectations around workplace operations, even after the pandemic restrictions were lifted. It was posited that nearly all studies conducted to explore telework prior to the COVID-19 pandemic were no longer fully applicable, citing differences in technology skills and preference fulfillment that would have been present in voluntary telework circumstances (Torres & Orhan, 2023). Therefore, topics that had been explored previously have needed to be re-explored to determine how they prove applicable in the postpandemic world.

Due to the COVID-19 pandemic's emotional, financial, and cultural impacts, people assumed new work behaviors, including styles, commuting types, and preferences

in work locations (Ahmed & Singh, 2023). The pandemic forced many employees into teleworking who may not have been prepared or interested in working in that environment (Mihalca et al., 2021). Natural language processing was used to analyze the Twitter platform's posts during the lockdown and found that people mentioned the benefits of collaboration tools and productivity, but also the difficulties of work-life balance and the lack of critical technology resources (Zhang et al., 2021). Organizations and employees alike were forced to adapt and adopt a new normal while continuing operations to the greatest extent possible to keep businesses afloat and employees on the payroll.

The COVID-19 pandemic presented a particularly turbulent time for making sense of teleworking patterns and effects. In some cases, organizations were as unprepared to support a switch to telework as the employees, compounding the adverse effects and impacting employee reactions and sentiment around telework (Atobishi & Nosratabadi, 2023). However, some of the issues around understanding how workers reacted to telework during the COVID-19 pandemic were due to the influence of external societal factors. In a study of 8,121 Europeans, researchers found that societal digitalization reduced the significance of education for workers to be able to successfully telework full-time during the pandemic (Settels, 2023). While the availability of technology in participants' countries did not directly impact telework frequency, it significantly moderated the relationship between telework frequency and individual-level characteristics such as level of education, health, income, and age. While teleworking, employees could have experienced task setbacks which translated into emotional

exhaustion and resource loss that negatively impacted their performance even the following day (Chong et al., 2020). These external factors of the society, environment, and the work itself were not controllable by organizations to improve the outcome of the forced-telework during the COVID-19 pandemic.

The effects of the shift to forced telework did not remain static throughout the shutdown, contributing to the difficulty in representing the effects of the move. A study collecting data from 516 participants employed in a Dutch multinational organization in 2020 found that changes due to the COVID-19 pandemic resulted in decreased workload and increased schedule autonomy and job satisfaction as immediate changes, but a reversal of those findings (increased workload, reduced schedule autonomy, and decreased job satisfaction) was uncovered in the later months of data collection during the pandemic (Syrek et al., 2022). Furthermore, job satisfaction for those living without children initially dipped upon the institution of COVID-19 pandemic telework protocols but recovered to the pre-pandemic levels within 5 months. Those living with children saw an immediate and sustained increase in job satisfaction that only waned at the final data collection point (May of 2020), which was thought to be impacted by the possibility of a return to the office (Syrek et al., 2022). Parents who did not telework pre-pandemic reported a more negative experience than their children, who were happy with the increased time with parents (Levine et al., 2024). Those changes in job attitudes over such a short period were not represented in the literature before the COVID-19 pandemic. Academic research has sought to determine what findings were only valid during the

COVID-19 pandemic and what effects would be expected to be pervasive beyond the event.

Not everyone worked from home full-time during the pandemic, but when they were offered a choice, external factors impacted their decisions. A study focused on employees working entirely in the office during the COVID-19 pandemic found that job insecurity and feelings of powerlessness correlated with presenteeism, even when sick, which increased health concerns and exposure risks (Shoss et al., 2023). A study of 127 Chinese IT company employees found that workers who experienced work-life boundary and work coordination stressors on a particular day were more likely to work from the office the next day. If they experienced workload stressors, they were more likely to telework the following day (Shao et al., 2021). This pattern suggests workers view the different work locations as meeting or not meeting needs in unique ways, contributing to the disparity in viewpoints on work location preferences.

Employees had to balance work requirements and work resource strain with possible alienation in personal relationships as the COVID-19 pandemic shutdown impacted their ability to see friends and family. Organizational practices such as good communication between workers and effective coordination of activities could offset feelings of alienation in a telework environment, even in workers who were predisposed to such perceptions, such as those lower in agreeableness or higher in extroversion (Doberstein & Charbonneau, 2022). Inclusive leadership, which involved those who were actively accessible and open to interactions, was found to have a direct positive relationship with work engagement (Tsang et al., 2024). Companies had to find ways to

provide the necessary support for employees to feel connected and productive, or their workforce would likely have faced negative consequences.

Reactions to COVID-19 and telework were not universal across all population segments. During the pandemic, both private and public sectors showed a positive association between telework and well-being, with public service workers reporting higher levels of well-being than their private service worker counterparts (Boulet & Parent-Lamarche, 2022). In two Canadian public sector worker surveys of 1,617 participants responding to items measuring feelings of alienation while teleworking and personality, it was uncovered that individuals who scored higher in agreeableness felt less alienated in the new COVID-19 telework status, whereas those who scored higher in extroversion reported more alienation (Doberstein & Charbonneau, 2022). Regardless of personality, when safety was a concern, a lower sense of control was found to be correlated with higher psychological stress and avoidance behaviors, which is in line with the conservation of resources theory (Li & Zhu, 2022). Personality differences could help explain person-level differences even when a population, such as the public service workers, reported macro-level trends of satisfaction.

Another personal variable impacting job satisfaction was age. Amarnani et al. (2023) posited that continued research focusing on older workers was necessary to understand the overall dynamic heterogeneity of how people change in the workplace and how different generations shift over time. Job satisfaction increased with age but also decreased with tenure, and older subjective, or felt, age, created a paradoxical understanding of the factor's impact and role in the workplace (Anser et al., 2020;

Cavanagh et al., 2020; Dobrow et al., 2018). Research found that workers gain extensive domain expertise through experience over time, but their performance was still impacted by things like their autonomy, ability to craft their jobs through infusion of their knowledge, and how they perceived age-related treatment (Amarnani et al., 2023; Bakac et al., 2023; Li et al., 2023; Sammarra et al., 2023).

Organizations with multi-generational workforces have used blanket policies, such as telework allowances, with differing results depending on employee age. Older workers saw more of a positive relationship between annual income and autonomy with job satisfaction than their younger counterparts (Li et al., 2023; Sammarra et al., 2023). However, there was a negative correlation to job satisfaction when older workers perceived over-reward or negative age-related treatment, particularly when there was a greater relational age between the employee and the distribution of other members' ages (Kollmann et al., 2020; Sammarra et al., 2023). When relationships between age-diverse employees were fostered, greater cooperation and job satisfaction were found for all ages, suggesting that age-inclusive policies could overcome disparities in satisfaction reactions to policies such as telework (Fasbender & Drury, 2022).

Supervisory status was another individual difference that was dynamically related to both telework and job satisfaction, as supervisors acted as arbiters to telework access for some employees, and supervisors both experience personal job satisfaction and impact the job satisfaction of their subordinates (Locke, 2020; Ryan et al., 2021; Quy & Zhu, 2024). The higher level of responsibility that came with managing others sometimes offset the benefits of the autonomy, and how a supervisor personally viewed the benefits

or detractors of teleworking could directly impact their subordinates' access and ability to telework (Mullins et al., 2022; Wallis et al., 2021). When supervisors felt telework was disruptive to productivity, whether due to the work being performed being high in task interdependence or their own capacity and proficiency in managing others' work, they could be reticent in allowing telework except to earn goodwill (Buick et al., 2024; Lembrechts et al., 2018; Park & Cho, 2022).

Work factors like higher responsibility strongly influenced supervisory job satisfaction more than their non-supervisory counterparts, but with telework also came increased autonomy, which was also found strongly linked to satisfaction in both supervisory and non-supervisory positions (Ryan et al., 2021; Wallis et al., 2021). Supervisors who may not have teleworked but still perceived that work was fairly distributed were likely to view it as a positive. When supervisors had a positive experience in teleworking themselves, they were more likely to support it for their subordinates (Lembrechts et al., 2018; Park & Cho, 2022). The interpersonal relationship between supervisors and subordinates impacted one's view of self and their perceived autonomy, suggesting that supervisory status was not only an impactful factor to consider regarding individual job satisfaction, but also others' satisfaction (Ryan et al., 2021).

Postpandemic, companies were navigating a rebalancing of amenities, opportunities, and resources using the lessons learned during the pandemic to inform their postpandemic state of work. Reactions to flexibility included decreased feelings of alienation in teleworking introverts with low job autonomy, but increased alienation for introverts with higher job autonomy (Doberstein & Charbonneau, 2022). Just as during

the pandemic, findings pointed to individual differences as critical considerations in the reception of telework across populations. As companies rebounded to business as usual after the pandemic, understanding the impact of teleworking on employees, as well as employees' satisfaction with telework, was imperative for human resources to understand how to maximize recruitment, placement, and retention effectiveness, and increase job satisfaction (Atobishi & Nosratabadi, 2023).

Problem Statement

The specific problem I addressed was the relationship between telework and job satisfaction and how age and supervisory status moderated that relationship in federal employees. Federal agencies and their leadership were experiencing differences in employees' job satisfaction as the post-COVID-19 pandemic return to office operations were underway, and decisions were being made for the availability of telework (Choi, 2018). Employee satisfaction was invaluable for overcoming challenges in recruiting and retaining talent, and organizations' understanding of how telework impacts job satisfaction and the possible moderating factors, such as age and supervisory status, may have explained differences in reactions and informed business decisions (Wesemann, 2023b).

Research on data collected by the OPM drew the connection between agencies with more teleworkers and those with less turnover and higher job satisfaction (Choi, 2020). However, it also reported that fewer older workers teleworked than their younger counterparts, suggesting that age had an interplay in the relationship between telework and job satisfaction (Kim, 2023). Furthermore, while being a supervisor was associated

with greater job satisfaction (Locke, 2020), research also suggested the existence of negative attitudes towards telework from supervisors, particularly when they either did not prefer that work environment themselves or believed the costs outweighed the benefits (Mullins et al., 2022). This suggested that supervisory status may have impacted the relationship between telework and job satisfaction. Altogether, this painted a picture of an issue for federal agencies deciding on workplace policies for flexible work arrangements and satisfying the workforce, considering individual differences that may have ultimately impacted how telework influenced job satisfaction. As such, I explored how age and supervisory status moderated the relationship between telework and job satisfaction, and the distinct relationship between telework and job satisfaction.

Purpose of the Study

The purpose of this quantitative correlational study was to examine the relationship between telework usage and job satisfaction among federal employees, with age and supervisory status as moderating variables. This study quantitative, non-experimental, and correlational in design was to explore the strength of the relationship between the independent variable, telework, and the dependent variable, job satisfaction. The moderating impact of age and supervisory status variables was also analyzed. I sought to answer the following questions and hypotheses for the relationships between variables.

Research Questions and Hypotheses

RQ1: To what extent is telework usage related to job satisfaction in federal employees?

$H_0$1: There is not a statistically significant relationship between telework usage and job satisfaction in federal employees.

$H_1$1: There is a statistically significant relationship between telework usage and job satisfaction in federal employees.

RQ2: To what extent does age moderate the relationship between telework usage and job satisfaction?

$H_0$2: Age does not have a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

$H_1$2: Age has a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

RQ3: To what extent does supervisory status moderate the relationship between telework usage and job satisfaction?

$H_0$3: Supervisory status does not have a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

$H_1$3: Supervisory status has a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

Theoretical Framework for the Study

The theories that I used to ground my study included Deci and Ryan's (1985) self-determination theory (SDT) and Carstensen's (1992) socioemotional selectivity theory (SST). Both served as underpinnings for why I explored supervisory status and age as possible moderators in the relationship between telework and job satisfaction, and supported the foundation for the correlation between telework and job satisfaction. A

brief overview of both theories has been provided in the following sections and expanded upon in Chapter 2.

Self-Determination Theory

Employees could be found motivated to perform at work based on how their needs for competence, autonomy, and relatedness were met, as suggested by SDT's Deci and Ryan (1985). Deci and Ryan (1985) suggested that fulfilling these needs was correlated with psychological well-being, social development, growth, and feelings of satisfaction, including job satisfaction, which is the main tenet of my study (Ryan & Deci, 2000). Motivation was posited as the key bridge between one's capability to achieve a goal and their willingness to strive to achieve it, and the SDT's Deci and Ryan (2008) examined worker motivation and resulting behavior through the scope of human agency among external factors of the role (Jacobs, 1993).

Deci and Ryan (2008) grounded the SDT in the concept of two types of motivation, autonomous and controlled, with autonomous consisting of feelings of self-endorsement and intrinsic motivation and controlled representing external regulation and reward or punishment of behavior. External factors, such as how a workplace was structured to meet employees' needs of competence, relatedness, and autonomy, were often things that could be impacted by organizations, such as work climate, trust, quality of supervision, security, pay, and benefits (Deci & Ryan, 1985). Interpersonal environments, like those between supervisor and subordinate, impacted one's view of self and could enforce or restrict feelings or actual enactments of autonomy (Ryan et al., 2021). While powerful in directing behavior, external regulation saw the most influence

on need fulfillment when employees internalized their treatment and environment, as it was difficult to maintain a consistent external environment (Ryan et al., 2021).

In organizations, certain offerings supporting autonomy, competence, and relatedness could be made available to the workforce to meet those needs (Deci & Ryan, 2008). However, how specific individuals took advantage of and applied those offerings, and their impact on meeting the specific employee's needs, differed depending on the employee's priorities for each autonomy, competence, and readiness. Ryan and Deci's (2020) basis for SDT was to explain the relationship between personality, self-awareness, vulnerability, and defensiveness with motivation to perform (Ryan et al., 2021). Those personal facets also led to differing needs, resulting in individuals responding to circumstances in disparate ways based on how they fulfill or neglect their specific needs for autonomy, competence, or relatedness.

I explored telework and job satisfaction factors for their relationship among federal employees, with age and supervisory status considered as possible moderators. Telework offered employees very high autonomy in their work, to the benefit of those with higher autonomy needs, but to the detriment of those who did not have as high autonomy needs (Andrade et al., 2023). Telework also impacted how employees perceived their relationship with others (Quy & Zhu, 2024). Finally, supervisory status offered higher autonomy and responsibility that could, in turn, influence how employees respond to telework in terms of their satisfaction (Quy & Zhu, 2024). SDT was used to ground my hypotheses for relationships.

Socioemotional Selectivity Theory

To fortify the theoretical underpinnings of the relationships being studied, Carstensen's (1992) SST was adopted to understand how people engage in behaviors and interactions with others to meet their goals, which shift over time. Age was found to cause a shift in perceptions and relationships with others over time, with older groups sometimes preferring relatedness through peer relationships that required less frequency and effort to maintain, and younger groups preferring higher relational feedback to grow and broader social circles to obtain that feedback (Amarnani et al., 2023; Carstensen, 1995; Hakanen et al., 2018; Li et al., 2023; Traymbak & Kumar, 2018). People at different stages and ages in life perceived different risks and benefits of maintaining relationships, and these changed based on what they were hoping to achieve and the resources they had available, which tended to lessen as their responsibilities in life, both at work and at home, waned (Carstensen et al., 1999).

The SST was developed to help explain the decline in the scope of social relationships with age, as previous theories assumed the reduction was due to a general rejection of the social world due to declining health or ability (Carstensen, 1995). Instead, Carstensen (1992) considered how an individual sought information, had an established self-concept, and could regulate their emotions to explain how and when someone preferred more relationships to draw resources from to grow in each of those motives (Carstensen, 1995). Younger people will have a higher requirement for outside input to fulfill their information seeking, which decreases with age, experience, and knowledge gathering over time. Young people are also likely to have lower emotional regulation, a

skill learned with time and requiring very little support in older age to maintain, with self-concept being one of the only motives that starts low in young age and remains a need even in older age (Carstensen, 1995).

Each of these requirements drives how an individual may seek out relationships as they age and what they gain from it, depending on the time of life they are in, a concept not fully explained by SDT's need for relatedness, but evident in how different age groups prioritize relatedness and relationships to fill their changing needs. I explored age as a possible factor that moderated the relationship between telework and job satisfaction, a hypothesis well-grounded for inclusion by Carstensen's (1992) SST, as one would expect to see differences in different age populations on how positively or negatively they reacted to a telework environment.

Nature of the Study

In this quantitative study, I examined the relationship between telework usage and job satisfaction in federal employees with age and supervisory status as possible moderators. To address the research questions, the specific research design included an observational cross-sectional design (see Edmonds & Kennedy, 2017) focusing on secondary data that captured information on telework usage, age, supervisory status, and job satisfaction from federal employees. I used quantitative analysis to determine the strength of the relationship between telework and job satisfaction, as well as how age and supervisory status moderated that relationship. I used secondary, government-collected data from the 2023 FEVS made publicly available by OPM, which acted as the data collection instrument (see OPM, n.d.-b). The 2023 FEVS had approximately 625,000

total respondents who answered relevant items used in my study.

The variable job satisfaction was particularly prone to confounding variables, as many intrinsic and extrinsic factors could impact it, ranging from stress, interpersonal relationships, to career development opportunities (Pandey, 2024). The FEVS had been reviewed for validity, particularly around job satisfaction, as it was a commonly used variable in studies, and it was suggested that researchers using the data to derive meaning beyond descriptive statistics take care to practice openness and transparency in their research for replication and evaluation (Resh et al., 2021). I did not control for possible confounding variables due to the limited availability of FEVS items that represent the wide range of potential factors. However, the exact items used and analytical procedures employed have been shared in accordance with the best practices recommended by Resh et al. (2021) to promote validity and rigor in the findings, should my study be replicated or evaluated.

Definitions

This section defines the independent variable, telework, the dependent variable, job satisfaction, and two moderating variables of age and supervisory status.

Age: Chronological age, with groupings of ages 40 or older and under 40 as set by the FEVS age items' categories (Anser et al., 2020; OPM, n.d.-b).

Job satisfaction: The degree to which an employee liked or derived pleasure from their job due to their appraisal of the work or their experiences (Andrade et al., 2023; Locke, 1976, as cited in Atobishi & Nosratabadi, 2023).

Supervisory status: When individuals were in roles held responsible for subordinates and enforcing policies, often characterized by higher responsibility, autonomy, and pay (Andrade et al., 2021; Lembrechts et al., 2018).

Telework: A work arrangement where employees completed their assigned responsibilities from their home or other approved location that was not the base of organizational operations using computers or other technology (Bae et al., 2019; Bakac et al., 2023). This factor was explored without specific time constraints, such as ad hoc, short-term, or long-term work arrangements, which may have had a different lexicon or understanding between organizations or literature.

Assumptions

One of my assumptions was that the responses gathered by the 2023 FEVS data source were representative of the majority of federal employees to have generalizable results. It was the broadest survey and data set available to represent the federal government's employees and their perceptions and experiences at work year over year. A second assumption was that the FEVS instrument was valid and reliable for measuring telework, age, supervisory status, and job satisfaction. Finally, I assumed that the respondents answered the items truthfully.

Scope and Delimitations

The scope of the study was limited to the focus of the FEVS survey items on the variables, as the survey received over 625,000 responses that were analyzed to draw meaningful correlations. Due to the structure of how demographic data was made publicly available from the 2023 FEVS, I explored age as a dichotomous variable of

under 40 and those 40 and over to match the FEVS categories. Supervisory status was also dichotomous in how it was originally captured, and my scope did not extend to exploring differences among the types of supervisors. To maintain my focus and scope, the dependent variable of job satisfaction was explored using a FEVS item that asks respondents to consider everything, which, in the context of the other satisfaction questions, would include things like involvement in decision making, information from management, and recognition. Similarly, a single item that focused specifically on the frequency of telework was used to represent telework, as it included options that consider choice or requirements in the frequency. The only data that I did not accept were incomplete response sets.

Limitations

A potential limitation when using secondary data was that there was no access to follow up with further data collection or manipulate how the data was captured. This secondary data set gave access to the broadest possible sample and therefore had the most capacity for being representative of the federal government as a whole. While primary data collection allows for direct access to the sample, should there be a need to introduce a mixed method or follow-up data capture, the use of secondary data eliminated that possibility. The sample population consisted entirely of federal employees and limited the results to being generalizable only to federal employees. A possible barrier was the availability of information beyond the specific items used in the FEVS to apply and understand the meaning of the results. The items of the FEVS could not be changed to elicit specific information. The context, explanation, and understanding of the items had

been entirely established by OPM, and meant the results were impacted accordingly. The public results were missing some of the sensitive demographic data collected, which may have limited the analysis completed due to the missing data. I will also need to be aware of the separation of my roles as a potential challenge, as I am a federal employee and subject to the possibility of bias due to personal experience.

Significance

Based on recently available data, the results may aid in understanding the relationship between age, supervisory status, telework usage, and job satisfaction in the modern federal workforce. Job satisfaction was critical in attracting and retaining top talent of all ages and echelons in the federal government and beyond due to its wide-ranging impacts on performance (Junior et al., 2024; Wang & Brower, 2019). If age or supervisory status impacted the relationship between telework use and job satisfaction, then it proved crucial information to be considered in business decisions to ensure government resources were best used to serve their mission to the public. The ability to recognize and consider the differences in job satisfaction as it relates to telework usage through the study's moderating factors could aid in making informed business decisions that prioritize employees' job attitudes and well-being, as that has strong implications for performance (Ahmed & Singh, 2023; Nugraha et al., 2022). While many companies provide critical products and services, the federal government provides that, alongside physical safety and defense, it is paramount that they employ the right people and understand and fulfill workforce needs to increase organizational effectiveness and service to the country.

Summary

In this chapter, I introduced the study's background, the problem being explored, and the self-determination and socioemotional selectivity theories grounding this exploration of the moderating effects of age and supervisory status on the relationship between telework and job satisfaction. In Chapter 2, I review the literature on telework, job satisfaction, age, and supervisory status, along with other related topics of interest, such as the federal government and feelings of anxiety and job stress that are often associated with my study's relevant factors. These related subjects are meant to facilitate a robust understanding of common themes in studies like this one, but they were not part of the analysis.

Chapter 2: Literature Review

Introduction

In this literature review, I explored four variables, individually and in pairs, to establish a foundation of understanding for how they all relate. The literature review begins by establishing an understanding of how the COVID-19 pandemic impacted scholarly understanding and previous findings for how telework and job satisfaction are related, as well as its broader impact on work itself. Each variable was given a focused section for studies that were centered on it, as well as a section for how telework, age, and supervisory status related to job satisfaction. Furthermore, there was a focus on the specific sample of U.S. federal government employees, analyzing findings for their telework experiences and job satisfaction. Finally, the review includes a summary of other relevant variables identified in the literature that contribute to a broader understanding of the topic.

Literature Search Strategy

The literature search included keywords such as *employee age, employee age and satisfaction, age and job satisfaction, age and telecommuting, job satisfaction and telecommuting, supervisory and telework,* and *supervisory and job satisfaction* on the Business Source Complete database and *employee age and job satisfaction, telework and job satisfaction, telework and age, supervisory and telework,* and *supervisory and job satisfaction* on APA PsycArticles. Results were limited to peer-reviewed journal articles published between 2018 and 2023.

Theoretical Foundation

I relied on two primary theories to ground my study: Deci and Ryan's (1985) SDT and Carstensen's (1992) SST. In the SDT, Deci and Ryan focused specifically on individual attributes and external factors that influenced motivation, establishing the theory on psychological needs of competence, autonomy, and relatedness which elicit psychological wellness and feelings of satisfaction. SDT was developed in response to the examination of human behavior through a motivational lens and sought to define human agency within the constraints of social and physical environments (Deci & Ryan, 2008). The researchers defined self-determination as the ability and flexibility to manage one's interaction with the environment. When applied to the work environment, the understanding was that employees must be sufficiently motivated to thrive.

In the SST, Carstensen (1992) focused on social interaction as a key tenet to human growth and survival, suggesting that people engage in behaviors that aim to achieve their goals, and that goals change over time. Together, these concepts helped explain how people at different life stages may seek out varying levels of social and emotional closeness with others as a means of psychological fulfillment, rather than feeling drained due to the cost (or energy expenditure needed) for the interactions. SST's Carstensen suggested that the narrowing of social interaction began in early adulthood, while interactions with close, significant relationships increased, while superficial relationships decreased with age (Carstensen et al., 1999). According to Carstensen, this was explained by the gains versus risks people in those stages place on maintaining different types of relationships, indicating that as people age, their focus shifts from a

wider social circle from which to glean a broad impression to a smaller focus on individuals deemed necessary and valuable (Carstensen, 1995).

The logical connections between the framework presented and the nature of my study include SDT's Deci and Ryan (1985) offering support for the idea that different people may experience varying levels of job satisfaction from using telework because of their capacity for competence, relatedness, and autonomy as a psychological need. Deci and Ryan's work was cited in studies as evidence of the relationship between employee well-being and retention (Ahmed & Singh, 2023), explaining why telework may support work affiliation as it relates to relatedness, autonomy, and competence (Andrade et al., 2023), and how employees who prefer a higher level of autonomy show greater preference for teleworking (Bakac et al., 2023). I expounded on that understanding by providing further evidence of its impact on job satisfaction. Based on SDT, supervisory roles may offer greater autonomy and impose higher demands for competence and relatedness as part of the teleworking process.

The SST's Carstensen (1992, 1995, 1999) helped explain why employees of different ages may have preferred or disliked teleworking due to the potential impact on social relationships inherent in working from non-centralized locations. The theory was seen when examining the negative relationship between age and job satisfaction (Anser et al., 2020), the shifts in socioemotional changes with chronological age and how that impacted job satisfaction (Cavanagh et al., 2020), and how perceptions of reward, growth, and development differed by stages of life leading to differences in satisfaction (Kollmann et al., 2020). Similar to SDT, Carstensen (1992) employed the SST to explain

how two employees in identical work environments might experience differing job attitudes based on age-related socioemotional goals.

Literature Review Related to Key Variables and/or Concepts

Telework

Telework emerged in the early 1970s, when less than half a percent of workers worked from home (Ahmed & Singh, 2023). By 2023, 59% worked on site, 12% worked primarily or entirely from home, and 29% had a hybrid work site arrangement (Barrero et al., 2023). During that period, work structures, workforce characteristics, and resource availability changed significantly, as did attitudes toward work arrangements. The pandemic created a unique situation where the maximum number of jobs were moved to telework, even though some thought they could not be completed off-site. This shift introduced experiences and insights that had not been available prior to the pandemic, resulting in work arrangements being optimized for the new environment (Barrero et al., 2023). Therefore, postpandemic telework may have looked or felt different to employees compared to prepandemic norms.

Not all workers were able to move to telework during the pandemic. Work arrangements varied by job tasks, population density (with sparsely populated areas correlated with reporting less telework), and organization size, with larger companies having a greater number of employees working from home in hybrid or full-time arrangements, including government employees (Barrero et al., 2023). During the pandemic, roles such as emergency medical personnel or even grocery retailers were unable to complete their jobs from home, regardless of the local population or company

size. For those who could telework, external factors, such as the work tasks, explained the availability of telework (Barrero et al., 2023), but internal factors, such as personality, influenced the willingness or choice to telework. A study using 2020 FEVS data explored employee work arrangement preferences in the postpandemic, voluntary telework environment and found that those who preferred teleworking pre-pandemic also preferred it postpandemic, and a preference for teleworking was negatively correlated to their satisfaction with intrinsic parts of their job, such as the job itself, the organization, pay, and recognition (Kim & Fay, 2024).

Telework prevalence was associated with certain demographic, environmental, or personnel characteristics, including higher levels of education, higher pay rates, faster internet, those in their 30s, and denser population areas (Barrero et al., 2023). Those with children showed robust increases in the use of telework, with women working from home slightly more than men, and those in their 20s were least likely to work from home (Brown & Tousey, 2023). Some factors, such as reliable internet and higher pay, which may facilitate access to faster internet, enabled workers to get the work done and were more likely to be found amongst the infrastructure necessary to support larger populations in urban areas (Barrero et al., 2023). Employers were, on average, closing the gap on plans for work location requirements and employee expectations postpandemic, and in urban areas, this suggests a lower likelihood for employers to implement a return to office initiative, matching employee desires and expectations more closely (Brown & Tousey, 2023).

Employees were found to be attracted to telework for various reasons, including improved work-life balance, more autonomy, and high job satisfaction (Moens et al., 2022). However, in some cases, personality traits and personal life skills may impact how they selected their work arrangements. A study employing latent profile analysis examined which combination of conscientiousness, autonomy, self-regulation, and extraversion was associated with a preference for teleworking versus working on site found that individuals in the profile scoring high to medium-high in each of the factors reported lower telework preferences but higher job satisfaction than their medium-low to low profile counterparts (Bakac et al., 2023). Not only did telework impact how employees chose to complete their current jobs, but the option to telework also drives job selection. Employees with lower levels of conscientiousness were more likely to be attracted to jobs offering telework opportunities (Moens et al., 2022).

Employees may have had strong preferences regarding their preferred work arrangements and selected jobs and organizations that allow them the flexibility to pursue those preferences (Brunelle & Fortin, 2021). In the competition for talent, work flexibility was a priority for applicants and a lever for organizations to attract and recruit top talent (Andrade et al., 2023) How attractive an applicant found a job with telework opportunities was significantly impacted by the offered wage compared to their current wage, with many willing to accept a lower wage in order to accept a role that allowed for telework (Moens et al., 2022). Employees with more than a year of tenure were less attracted to telework than their less tenured counterparts (Moens et al., 2022). When the opportunity for telework time increased by 10% points, job attractiveness increased by

2.2% points, and willingness to accept a lower wage increased by 2.3% points (Moens et al., 2022).

Telework has been perceived as raising work satisfaction (Kazekami, 2020), but any benefits gained only remained when there was organizational support (Ahmed & Singh, 2023). If employees struggled to complete their work while teleworking, or in an environment where they were not collocated with company resources and coworkers, they were unlikely to resolve such issues independently in the absence of organizational support (Chong et al., 2020). Some negative psychological effects existed because personal functional systems used during the workday needed time to disengage and rest and telework may have hindered opportunities for restorative disengagement (Elbaz et al., 2023). Aligned with the conservation of resources theory, a study of professionals found that when they telework, they generally experienced less time pressure and lower work-family conflict that day, but those who did experience conflict, it was found to be predictive of the next day's engagement levels (Darouei & Pluut, 2021).

Nurturing the relationship between telework and job satisfaction could be achieved by the organization, and it benefits both the organization and the employee. It was found that work-life balance, organizational and technological support, and overall job satisfaction positively impacted employees' satisfaction with telework, whereas perceived limited communication negatively impacted it (Atobishi & Nosratabadi, 2023). As telework impacted regular schedules, balancing job demands and available resources, while supporting the development of employee personality traits, was likely to enhance job satisfaction (Bakac et al., 2023). Telework could be a positive, impactful, and

effective means of working that benefits both organization and employee, and organizations should understand the factors that lead to such success.

Job Satisfaction

Locke (2020) defined job satisfaction as a positive emotional reaction to an individual's evaluation of their job or work experience. Numerous internal and external factors could impact job satisfaction, which in turn impacted things like employee performance and commitment (Ahmed & Singh, 2023; Nugraha et al., 2022). Workplace conditions, such as technological or emotional support and work-life balance, impacted one's satisfaction, which in turn impacted their willingness to telework (Atobishi & Nosratabadi, 2023; Shirmohammadi et al., 2022). Furthermore, depending on employees' relationships with their leadership, even the reduced in-person support associated with telework did not affect job satisfaction when the quality of the relationship with leadership was already low (Badura et al., 2023). Job satisfaction was a highly personal reaction to a job circumstance, and research continually studies it to find common factors that show promise in influencing it, such as telework.

Telework and Job Satisfaction

Numerous studies have explored the relationship between telework and job satisfaction to better understand the factors that led to any observed correlations and the impact telework could have on job attitude. Telework has been positively correlated with job satisfaction and organizational commitment (Nugraha et al., 2022). Job stress, which could occur in telework situations when insufficient organizational support was available or a worker does not prefer to telework, was negatively correlated with job satisfaction

(Ahmed & Singh, 2023). This conflicting evidence was why the topic has been so heavily studied, as it has been found to rarely be as straightforward as assuming that working from home directly results in increased job satisfaction. Organizations should consider individual needs via assessment and employee feedback to ensure employees' needs are being met, thereby increasing job satisfaction and supporting autonomy to choose where they work, as that is positively correlated with job satisfaction (Andrade et al., 2023)

Telework opportunities increased employees' ability to balance work and family demands, rather than interfering with each other (Andrade et al., 2023). The time a worker would spend traveling to and from a work location could be claimed back for completing the work, and accessing one's work at home also meant they may have been able to complete it in a timeframe that works with their personal life and family demands, as the work was right at their fingertips. However, telework separated employees in terms of literal physical and social space, which could have resulted in reduced support and consideration from colleagues, negatively impacting job satisfaction (Badura et al., 2023).

How telework translated to job satisfaction depended on several factors, including the environment itself and an employee's skills to work in such an environment. Good physical conditions in the work environment and adequate tools and resources to complete the work were positively correlated with job satisfaction and performance (Hashim et al., 2020; Mihalca et al., 2021). Furthermore, research found that self-management tactics, or the ability to guide and structure work behavior, positively correlated with telework job satisfaction (Mihalca et al., 2021). Office-based workers

reported increased job satisfaction when their need for competence was fulfilled, whereas teleworking employees experienced the greatest positive effect when their need for relatedness was fulfilled, both of which could be impacted by mindful organizational structures and processes that sought to meet those needs (Brunelle & Fortin, 2021).

Not all influencing factors could be so easily controlled. When examining longitudinal data from 8,691 participants in the Household, Income, and Labour Dynamics in Australia Survey, Lass et al. (2023) found that while men did not see a significant change in job satisfaction when changing the amount of time spent teleworking, there was a positive, nonlinear relationship was observed among women, particularly when the subdimension of flexibility to reconcile work and family responsibilities was analyzed, with job security, pay, and hours showing a weaker yet still positive relationship. Higher workload was also found to be positively correlated with job satisfaction in telework (Mihalca et al., 2021).

Workers' ability to manage their work behavior was another intrinsic factor in how the relationship between telework and job satisfaction was influenced. Employees with better self-management tactics, or the ability to guide and structure their work behavior, showed a positive correlation between telework and job satisfaction (Mihalca et al., 2021). Person-environment fit drove job satisfaction in telework situations, and factors such as preference for autonomy and ability to handle interruption and isolation influenced person-environment fit in turn (Quy & Zhu, 2024). While organizations could influence the numerous factors involved in the connection between telework and job satisfaction, individual characteristics ultimately shape the unique relationship.

Age

Research continues to examine age, as its impacts evolve with the entrance of new generations into the workforce, the exit of others, and the ongoing transformation of workplace norms, technologies, and roles. Much of the existing research on age in the workplace has focused on heterogeneity between age groups, overlooking differences that exist within the groups themselves, such as understanding older age groups as being inherently varied without contrasting against any other age group (Amarnani et al., 2023). This variance could have helped account for when there have not been obvious patterns in how broader age groups related to things like telework.

Age in the workplace, particularly during the late-career stage, could be examined through the lens of the employee-organization relationship, with the quality of that relationship impacting how a worker may participate or whether they chose to remain in the workforce (Amarnani et al., 2023). Like workers of all ages, older employees' workplace engagement is influenced by the resources available to them, but with age comes new health and financial circumstances and a shift in family and career identities and priorities (Amarnani et al., 2023). Organizations with age-inclusive policies promoted development striving, knowledge sharing flowed between older and younger employees, resulting in enhanced cooperation and collaboration (Fasbender & Gerpott, 2022). Employee expectations for their organization and personal circumstances shifted over time as needs and priorities changed (Cavanagh et al., 2020). Therefore, age is very important when exploring employee relationships with work environments.

The expectations an employee held for their organization were often viewed through the lens of unwritten internal contracts a worker may keep in exchange for the effort and time they gave to the organization in exchange for the resources the organization provided back to them (Kollmann et al., 2020). Psychological contracts, the foundation of employee-organizational relationships, evolved with interpersonal changes in older workers, including their experiences, circumstances such as cognitive or physical ability changes, and needs (Amarnani et al., 2023). Individual employees could have held a relational or transactional psychological contract with the organization based on interpersonal factors such as family demands, health status, and financial status, and individual career trajectories could vary from thriving, surviving, downshifting, or exiting (Amarnani et al., 2023). As career trajectories shifted from thriving to exiting over time, there were impacts on what employees needed or expected from organizations as support or resources.

The concept of different age groups reporting differences in perceptions was not relegated to just the United States but was found globally. A study completed in Lithuania inspecting for differences in attitudes toward telework between genders and ages found that older generations do not express greater dissatisfaction than younger generations, but also did not indicate a preference for telework, and millennial men reported career development problems with telework more than their female counterparts or members of other generations (Raišiene et al., 2021). A study on 434 Italian school teachers found that for older workers who work among a much younger cohort, engagement, or a fulfilling positive work state, increased when there was perceived positive age-related

treatment, but showed a negative correlation when there was perceived negative treatment, while amongst much younger coworkers (Sammarra et al., 2023). Younger workers reported an increase in engagement with positive age-related treatment, no matter the age of their work unit. The way in which workers of different ages interacted with their work and each other had an impact on their job attitudes and was likely to influence the relationship between telework and job satisfaction.

Age and Job Satisfaction

Over time, workers' priorities and expectations of their jobs changed with their life circumstances, but their perceptions also shifted. In a study examining the relationship between subjective age, or in this case, perceived age higher than chronological age, and job satisfaction, a significantly negative correlation was identified both directly and indirectly via burnout, a finding posited as related to personal resource availability (Anser et al., 2020). This suggests that not only an employee's perception of the job or the organization, but also their age itself, influenced the pathway to job satisfaction. While it may not have been feasible for organizations to have attempted to measure workers' perceived age, it was important for there to be an understanding that the impact of age on job satisfaction was not simply a direct chronological passing of time to job attitude, but rather was impacted by the person experiencing aging and their perception of it along the way.

How employees perceived their own age impacted their job attitudes, and how they perceived others of a different age produced results of its own. One study collected data from 100 dyads with at least 10 years age difference between the two members to

examine the impacts of the age-differentiated relationships and found that they promoted cohesion and feelings of oneness, viewed as an expansion of self but also inter-role conflict, or increased resource demand to navigate the age diverse relationship, that, in turn, affected job satisfaction (Fasbender & Drury, 2022). If the reaction to age diversity was increased resource demand, it was important to mitigate these effects by meeting those needs or encouraging feelings of unity and oneness instead (Cavanagh et al., 2020). It was recommended that organizations should be examining their workforce, particularly where there were pockets of large age disparity, to determine if that were contributing to job satisfaction and what could be done to either promote the feelings of cohesion or meet the increased resource needs to ensure job satisfaction (Arrington & Dwyer, 2018).

Employee reactions to people of other ages were not the only way older and younger workers differ. A study by Kollmann et al. (2020) found that younger workers were more satisfied by monetary rewards, reporting job satisfaction increasing with pay, even if it is an over-reward for their task contribution, but satisfaction decreasing with under-reward, whereas older workers reported higher satisfaction through task contribution and increasing pay to a perceived mismatch in task contribution to pay can drop job satisfaction. In other words, the work older employees felt they were providing for the organization controlled how monetary rewards translated to job satisfaction, making task contribution a powerful predictor for job satisfaction in older populations (Kollmann et al., 2020). Older workers reported far more sensitivity to perceptions of over-reward; however, they suggested that blanket pay increases for the workforce were unlikely to positively impact job satisfaction equally.

Younger employees who could craft their jobs' tasks and relationships and received autonomous respect showed a stronger connection between person-job fit and job satisfaction than their older counterparts (Li et al., 2023). A young employee with the autonomy or authority to control their work likely felt more invested in their own success and the company's success (LaGree et al., 2023). Older employees who had the freedom to cognitively craft or apply their personal beliefs or views to the work showed a stronger relationship between person-job fit and job satisfaction than their younger counterparts (Hakanen et al., 2018; Li et al., 2023). It stands to reason that people will build a lexicon of beliefs as they age, and being able to apply those at work means they are likely to feel more involved and accepted as their authentic selves.

In a cross-sequential study, Cavanagh et al. (2020) collected data from 2,593 participants ranging from 18 to 95 years of age three times in the span of 7 years, and found that the relationship between autonomy and job satisfaction increased with age. With age came experience, and applying that knowledge independently could act as a sign of trust and autonomy from the organization. Middle-aged employees (defined for the study as ages 31-40) showed a significant positive effect on job satisfaction when it came to a role's skill variety, task significance, and autonomy, whereas their younger counterparts saw a stronger positive impact on job satisfaction when it came to task identity and feedback (Traymbak & Kumar, 2018). As younger workers were less likely to have confidence in their experience and knowledge, their preference for feedback compared to the older workers' preference for autonomy was logically aligned.

It would be easy to conflate age with tenure in a job or at a company, but researchers have looked to disentangle the independent effects of age and tenure on job satisfaction. Using 29 years of data collected by the Bureau of Labor Statistics, Dobrow et al. (2018) examined 21,670 participant responses to items focused on job satisfaction and pay, while calculating tenure and age along the way, and found that job satisfaction decreased with tenure and age, but increased with age and switching organizations, both of which were mediated by pay. Expectations for a job or company changed with age, but it seemed they also shifted with tenure and were not in favor of job satisfaction. Job satisfaction was found to drop even beyond the first year of employment, increasing when an employee starts a new job at a new organization, and experiencing a similar decline in satisfaction as their tenure increased in any one role (Dobrow et al., 2018). This reduction in job satisfaction due to tenure was distinct from the relationship between age and job satisfaction, and the higher satisfaction seen with age was not due to time spent at the company or tenure.

Supervisory Status and Job Satisfaction

A multilevel modeling study using data from 30,683 participants across 31 countries in the European Social Survey found that having supervisory status was positively correlated with job satisfaction, particularly when individuals or cultures valued power more highly (Locke, 2020). For global organizations that span multiple cultures, such as the Federal Government, studies with diverse populations were vital to understanding the connection between supervisory status and job satisfaction, and where it should be expected. A study of 4,215 New Zealanders looking at differences in well-

being and satisfaction found that non-supervisory employees reported less favorable perceptions of the organizational support and lower satisfaction with life, whereas their supervisory counterparts reported greater work demands and lower work-life balance, with job autonomy mediating the relationship between supervisory status and well-being (Wallis et al., 2021). Since job autonomy was a hallmark of supervisory status, this was evidence that supervisory status should be considered when considering how other factors may impact job satisfaction.

Among both supervisory and non-supervisory employees, non-work-related life challenges have been strongly associated with psychological stress. Relationship problems were the strongest predictor for both groups, while financial difficulties were the second strongest predictor among non-supervisors (Wallis et al., 2021). It is neither feasible nor reasonable for personal stress not to impact employees at work, and how they feel about their work can either compound or assuage their concerns. Supervisors and senior leaders generally experienced greater autonomy, they also face significantly higher work demands, and the well-being of supervisors appeared to be more strongly influenced by work factors than that of non-supervisors (Wallis et al., 2021). While researchers could expect to see a positive relationship between autonomy and job satisfaction, that correlation was not without possible confounding factors, some of which come along with supervisory status.

A global study across 37 countries found that supervisors, with greater autonomy, higher pay, and added responsibility, reported higher job satisfaction than non-supervisors, who reported that job autonomy, schedule flexibility, and job usefulness

impact their job satisfaction (Andrade et al., 2021). While non-supervisors may desire the benefits associated with supervisory roles, such a view risks oversimplifying the potentially competing priorities faced by different employee groups. When federal workers were left to choose whether they telework or not, supportive leadership, an inclusive environment, and female supervisors who engaged with supportive leadership all led to greater participation in telework opportunities (Bae et al., 2019). Schedule flexibility, such as telework, was often regulated by supervisors as well, meaning they not only enjoyed personal autonomy but could also exert control over their subordinates on factors that impact job satisfaction.

How supervisors support the use of telework was dependent on the type of work done by their subordinates, with researchers finding a negative correlation between task interdependence on a team and the supportiveness of the supervisor in regard to telework, moderated almost entirely by the supervisors' dependency on the team (Lembrechts et al., 2018). The symbiotic relationship between supervisors and their subordinates ideally struck a beneficial balance for both, with subordinates performing their work effectively and supervisors supporting them (Buick et al., 2024). Supervisors sometimes cited concerns of disruption in productivity when considering telework for their team, but they may still have supported it to earn goodwill and retain top performers (Lembrechts et al., 2018). In line with the Conservation of Resources theory, Buick et al. (2024) found that managers possessed both the capacity, which was dependent on their self-efficacy and experience with telework, and willingness, influenced by their perceived resource loss or gain due to telework, to promote and enable flexible work arrangements.

How telework was perceived in the federal government was impacted by supervisory status and supervisory proficiency. Federal supervisors who teleworked and had a positive supervisory experience in such an environment tended to have positive perceptions of telework on an organizational level, and those who did not telework but perceived work was fairly distributed also viewed it as positive (Park & Cho, 2022). Part of being a supervisor over subordinates who telework was having established trust that work was still being done with integrity and efficiency, and research indicated that supervisors who practiced interactional monitoring that relied on trust saw employees reporting lower stress, therefore higher job satisfaction (Hamrick et al., 2024). There was a statistically significant and positive relationship between federal supervisor proficiency and viewing telework as a positive impact for an organization (Park & Cho, 2022).

Federal supervisors who teleworked spent a statistically significant lower amount of time at the office completing tasks that can only be completed at the office than their non-telework counterparts, but both were found to take part in formal and informal meetings a similar amount (Park & Cho, 2022). This suggests that telework itself does not impact supervisors' ability to participate and complete work, so any perceptions that it may have been were likely to be rooted in other factors. Telework appeared not to impact the relationship between supervisory status and job satisfaction, but supervisory status held enough influence for it to be an important consideration in the relationship between telework and job satisfaction.

Federal and Local Government and Telework

The implementation and perception of telework in the private sector did not always align with its use in government agencies. With the COVID-19 pandemic, many agencies were forced to adjust to increased telework. For example, Choi (2020) found in a longitudinal study that, pre-pandemic, agencies with higher numbers of teleworkers, teleworking rates, and who supported more telework saw less voluntary turnover. Telework eligibility was found to positively impact federal employees' job satisfaction and their perceived fairness and intention to stay (Lee & Kim, 2018). This followed the pattern of findings that employees given autonomy and the ability to craft their jobs consistently showed positive correlations with job satisfaction.

Lewis et al. (2023) found that before the pandemic, workers who elected to telework three or more days a week were the most satisfied with their jobs, those who did not want to telework were the next closest in satisfaction, and those who wanted to telework and were denied the opportunity were the least satisfied, holding true in both samples before and during the pandemic. When government workers who responded to the 2013 FEVS reportedly were given the ability to choose their work arrangements, even non-teleworkers showed lower intentions to turnover than their telework counterparts; furthermore, turnover intentions were negatively correlated with job satisfaction (Choi, 2018; Wesemann, 2023b). The correlations between telework and job satisfaction have been pervasive and consistent from before the pandemic, suggesting that the relationship was independent of that work-changing event.

Although telework was available prior to the pandemic, the global shutdown compelled government agencies of all sizes and locations to adjust operations to allow as many employees to telework as possible to protect employee health. Seventy-one percent 0f federal employees reported using telework more during the pandemic than before the outbreak began, with a statistically significant increase from 49.7% pre-pandemic to 82.9% during the pandemic (Kim, 2023). Differences in telework usage for federal employees fell along demographic lines, with middle-aged and older employees, racial minorities, individuals with disabilities, and male employees less likely to increase their telework usage during the pandemic (Kim, 2023). Although some employees did not or could not telework due to the nature of their jobs, telework was mandatory for most, fundamentally shifting how agencies perceived their capacity for operational efficiency.

Analysis of the 2021 FEVS revealed that telework frequency was a strong predictor of job satisfaction among federal employees (Wesemann,2023a). Using survey data captured by the Federal News Network 2 months into and then 10 months into the pandemic, researchers found that federal employees saw the pandemic-enforced shift to telework to have a split impact on job satisfaction, with half of the respondents reporting increased job satisfaction due to greater safety, and the other half expressing less job satisfaction due to inadequate tools and environment to do their jobs (Mullins et al., 2022). Also, the relationship between job satisfaction and telework in the federal workforce was found to be moderated by the perceived quality and support of their supervisor and management (Kim, 2023).

Federal employees who did not participate in telework postpandemic show differing effects based on the reason for nonparticipation. Those who felt they were prevented due to technical or leader support reported significantly lower job satisfaction than those who teleworked, but when job requirements impaired telework opportunities, there was no significant difference in job satisfaction (Lee & Kim, 2018). A postpandemic FEVS study found that Black, Latino, and younger employees were more frequently denied telework requests, despite its established connection to higher job satisfaction (Lewis et al., 2024). The impact of teleworking on job satisfaction extended beyond just the specific circumstance, but also to those who did not telework.

These patterns of support and satisfaction (or lack thereof) were also evident in local government settings. Employees of the City of Tempe, Arizona, found that how they viewed strategic human capital management, particularly around direct supervisory support, positively correlated with their job satisfaction (Wesemann, 2023b). A study of local Californian government employees found that telework options improved job performance and satisfaction (Kwon & Kim-Goh, 2023). As government agencies sought to better understand the factors influencing workforce job satisfaction, the evidence pointed to telework as an important factor.

Federal Employees and Job Satisfaction

Hiring and retaining highly skilled individuals is essential for national security, community services, and the effective functioning of the nation's infrastructure (Junior et al., 2024). However, this poses a challenge, as the federal government competed with the private sector for talent but often cannot match or beat its flexibility and compensation

levels (Leider et al., 2023). As a result, government agencies face increasing pressure to attract new talent and maintain the satisfaction of existing employees. Leider et al. (2023) found that among governmental public health employees, younger employees reporting an intention to leave were more likely to cite low job satisfaction as a reason compared to employees aged 50 or older. Overall, employees who indicated they were dissatisfied with their job had an adjusted odds ratio of 3.8 for intentions to leave.

The nature of federal employees' relationships with their work and colleagues is a key predictor of job satisfaction. Job satisfaction was positively correlated with job compatibility, the extent of personal accomplishment, the opportunity to develop skills it provides, and their relationships with their coworkers and supervisors (Wang & Brower, 2019). How one felt related to their supervisors, peers, and subordinates have all been found to positively correlate to job satisfaction (Battaglio et al., 2022). Organizations that cultivate a culture of connection, belonging, inclusion, and meaning in relationships could not only mean the difference in job satisfaction and employee health and well-being, but also influence overall agency performance.

Anxiety

Employees' emotions were intrinsic to their being and could not be separated from who they were and their ability to function at work (Deci & Ryan, 1985). Elevated anxiety from the global pandemic may have contributed to findings of a negative correlation between telework and job satisfaction (Mohammed et al., 2022, as cited in Ahmed & Singh, 2023). Anxiety regarding the risk of contracting COVID-19 was found to impair critical work outcomes, but it was mitigated by handwashing, suggesting that

anxiety's impacts on the work can indeed be thwarted by proactive measures (Trougakos et al., 2020).

Workplace Anxiety Theory suggests that employees experiencing momentary anxiety were likely to exhibit low performance that matched the level of cognitive interference brought forth by the anxiety, whereas those experiencing chronic anxiety showed lower performance, particularly when the anxiety levels were high (Cheng & McCarthy, 2018). Additionally, work anxiety carried over into life outside of work, creating a circular problem. For example, higher levels of unfinished work during the week resulted in lower competence and need for satisfaction over the weekend, which can be attenuated by proactive work (Weigelt et al., 2019).

Anxiety is not experienced uniformly among employees. For some people, however, a certain level of pressure or anxiety was helpful to drive their performance. Workplace anxiety could be either facilitative or debilitating to job performance, depending on an employee's level of motivation, ability to perform the job, or emotional intelligence to engage in proper self-regulation (Cheng & McCarthy, 2018). Older workers tended to exhibit lower levels of anxiety due to the adaptive skills they have gained over time (Cheng & McCarthy, 2018).

Organizational Support and Resources

A recurring theme in the literature on telework and job satisfaction was the idea of how organizational support and resource availability could impact workers' ability to perform and satisfaction with working environments and jobs (Atobishi & Nosratabadi, 2023; Bakac et al., 2023; Boulet & Parent-Lamarche, 2022; Choi, 2018; Gillet et al.,

2019; Lee & Shin, 2023). A study using 2020 FEVS data, both those who teleworked and those who worked exclusively on site during the pandemic, found organizational and supervisory support directly increased employee engagement, whereas work-life balance policies had a negative effect for those on site and had no effect on telework employees (Lee & Shin, 2023). This suggests that workers reacted positively to actions and tangible support, rather than rules and policies around balancing work and life outside of work. A study on 368 American and Canadian employees found that changes in perceived organizational support and family-supportive supervision were positively and reciprocally correlated; increases in perceived organizational support drove increases in job satisfaction (Walsh & Kabat-Farr, 2022).

Job resources such as organizational support and work schedule autonomy were found to be correlated with a lower likelihood of need dissatisfaction (Gillet et al., 2019). When needs were not met, there were psychological difficulties for employees, such as anxiety and fatigue. Employees benefitted from a less stressful environment when they were allowed to invest personal resources such as time and energy; when employees lack personal resources like physical or emotional energy, it contributed to job burnout and lower job satisfaction (Anser et al., 2020; Choi, 2020).

Work-Life Balance

Working from home could have meant workers can strike a different balance between personal and work responsibilities than when they commute into the office every day (Battur & Kandagal, 2022; Elbaz et al, 2023; Gillet et al., 2019; Nugraha et al., 2022; Shirmohammadi et al., 2022). A study of 89 Canadian mothers with careers in

psychology found that they reported overall high job satisfaction but variable work-life balance depending on the availability of social support, such as daycare and workforce support, such as flexibility in work location (Wiens et al., 2023). Telework could allow families, especially parents, closer proximity to their loved ones, but with that came the potential for boundaries to blur, encroaching upon work-life balance. Having multiple people in the home significantly worsened work-life balance, particularly when men took on fewer domestic responsibilities (Elbaz et al., 2023).

In a systematic review of 120 studies on telework, work-life balance was found to be positively correlated with telework in 11 of the 17 studies focused on the variable, with four others showing a negative correlation, and insignificant in the final two (Mele et al., 2023). Battur and Kandagal (2022) suggested that the mismatch between telework and satisfaction occurred when there was an imbalance in time requirements between home and work responsibilities. Individuals tended to draw the boundaries between home and work differently, and these shifted over time, which led to possible feelings of balance or imbalance (Urbanavičiūtė et al., 2023). Work-life balance positively affected well-being, which in turn impacted productivity and engagement with work, all of which could be enabled by managerial practices (Buick et al., 2024; Chu et al., 2022).

Summary and Conclusions

The relationship between telework and job satisfaction is well established in the literature, but COVID-19 nullified much of the literature and knowledge held prior to the pandemic due to the massive changes in how the world, including work and the behavior of employees, operates. The abrupt shift to telework meant that employees and

organizations alike were put in an environment they may not have been prepared for or prefer. Depending on a number of personal factors, such as the ability to organize work and perform in a physically isolated location, or organizational factors such as technology and leadership support, employees reported varying degrees of job satisfaction.

As job satisfaction may impact performance and organizational commitment, organizations need to understand what leads to those variances, as the literature points to a strong correlation between telework and job satisfaction. For employees working at home with family, their satisfaction with their job could be influenced by the number of domestic responsibilities that they felt responsible for, and there was no reliable way to predict or control that from an organizational standpoint. Telework can sometimes result in blurred boundaries between work, home life, and responsibilities. In some ways, it is positive that employees can potentially get home responsibilities done during the workday, but it can also be hard to end the workday and disconnect fully. Telework allows employees to get right to work without a commute and work more autonomously, which is a strong preference for some and less so for others.

Among the individual differences among employees is how a multi-generational workforce reacts to telework environments. Older workers tend to react positively to workplaces that allow them to craft their tasks, share their experiences, and reward employees appropriately for their work. Middle-aged workers prefer skill variety and autonomy, and younger workers prefer feedback and task identity. How an employee perceives their own age and their age in relation to peers of all ages can also impact their job satisfaction, where feelings of cohesiveness and inclusion between generations can

result in higher job satisfaction for all. Employee age is an important factor to consider when exploring impacts on job attitudes, such as job satisfaction, because there are distinct differences in how different generations tend to react to the same organizational offerings and operations.

Another factor to be explored is supervisory status, as it alone is broadly correlated with job satisfaction, but also, supervisors' perceptions of telework can bleed into how they oversee their subordinates' ability to telework. Supervisors who prefer to telework are more likely to promote and permit subordinates to telework, even if it requires them to have trust and manage employees proficiently to overcome physical separation challenges, such as clear and consistent communication. Largely, federal supervisors were given back the authority to approve or deny telework requests postpandemic, and similar findings of telework being positively correlated with job satisfaction were found in the federal government both pre- and postpandemic, suggesting that supervisors had influence over the job satisfaction of the workforce.

Several variables, such as anxiety and work-life balance, were common themes in the literature on telework and job satisfaction. The pandemic introduced a unique stress to workers as even those in jobs that are traditionally less risky to their health found themselves worrying about their safety day to day, and such feelings negatively impact motivation and job performance. Telework allowed workers to protect themselves from a higher risk of disease, but it also allowed them to blend their work and home life and responsibilities due to being collocated with both. Results were mixed on how consistently work-life balance is improved, with those comfortable with working in a

more isolated environment, with less domestic responsibilities such as caring for family members, and those who were able to draw and maintain boundaries around work and life reporting higher job satisfaction. The support workers receive, both at home and from their organization, as well as the resources they were given, such as technology and supervisory support, all impact the relationship between telework and job satisfaction.

As the federal government navigates competition for and retention of talented employees, it is imperative to understand how telework impacts the federal workforce's job satisfaction as postpandemic policies and practices are established. Variables such as age and supervisory status have been shown to impact job satisfaction and could explain variances in how federal employees respond to FEVS items regarding telework and job satisfaction in a meaningful way. Determining the influences on federal employees' job satisfaction supports not just the government agencies but the American public.

Chapter 3: Research Method

Introduction

The COVID-19 pandemic shifted perspectives and expectations of employees for organizations and the way work is done (Ahmed & Singh, 2023). The push to telework during the pandemic was sudden and uncompromising in its requirement, regardless of preparation or preference, or availability dependent on the type of work being done by a role (Barrero et al., 2023; Brown & Tousey, 2023). While telework's positive relationship with job satisfaction was established in studies completed pre-pandemic, I examined federal employees' responses to the annual FEVS to find how telework was related to job satisfaction in the postpandemic workplace, as well as how age and supervisory status moderated the relationship. Job satisfaction was correlated with organizational commitment and higher performance; therefore, it was important to understand its drivers (Nugraha et al., 2022).

In this chapter, I describe the research methods I used to evaluate the relationships between telework, job satisfaction, age, and supervisory status. I include sections on the rationale for choosing the research design, methodology for analysis, the instrument, and possible threats to validity or ethical concerns. Focus is also given to the sample population and the specifics for how the data was collected. The data analysis plan introduces the software used and procedures applied to the data to clean and analyze it.

Research Design and Rationale

I used an observational cross-sectional design to address the research questions in this quantitative study (see Edmonds & Kennedy, 2017). In this quantitative analysis, I

examined the strength of the relationship between telework and job satisfaction, as well as how age and supervisory status moderated that relationship. This design allowed for a comprehensive analysis of a large dataset in a timely manner that was only limited by its one-time data collection. As I did not determine root causes or explore drivers behind the possible relationships between variables, the design provided findings that could be used to support future research.

Methodology

The 2023 FEVS provided a timely and robust data source for maximum representation of participants across the federal government. I operationalized several key items from the survey to explore the broad range of telework usage and job satisfaction reported, as well as used the demographic data, to explore how these constructs interacted across the government without being limited to a specific size or type of agency. As postpandemic policies and guidelines are part of an ongoing conversation, it is important for the government to understand the impact that telework, age, and supervisory status have on job satisfaction, to be prepared for the implementation or removal of telework availability.

Population

My target population was U.S. federal employees of all levels, ages, and work types. Participants in the survey were federal employees at agencies ranging in size from very small (fewer than 100 employees) to very large (greater than 75,000 employees). Any federal employee who was employed as of November 2022 was eligible to participate in the survey (OPM, 2023a). The 2023 FEVS had 625,568 respondents

complete the instrument after 1,609,839 were sent out via email to eligible employees, which did not include contractors or political appointees.

Sampling and Sampling Procedures

As I used secondary data from the 2023 FEVS, the sampling described will define how OPM administered the survey and the inclusion or exclusion criteria I used. The technical report for the 2023 FEVS made available by OPM indicated that several federal agencies that previously took part in the FEVS did not in the 2023 iteration, including the Department of Veterans Affairs, the National Aeronautics and Space Administration, and the U.S. Securities and Exchange Commission (OPM, 2024). As a means of showing that the FEVS responses were an accurate representation of the total federal workforce, OPM included comparisons of the total workforce compared to the respondents in several categories, with most the closest match being a 1% difference in minority populations (38% of the workforce compared to 39% of the respondents) and the largest disparity being 22% of the federal workforce was comprised of Pay Grades 13 to 15, whereas 42% of the respondents fell in that grade range (OPM, 2024). This suggested that even without every single agency taking part, the participants' responses were still satisfactorily representative of the total workforce. OPM reported several items were modified, but all other procedures remained consistent with previous years: a census of all eligible federal employees employed as of November 2022, with the survey remaining open May 30 through July 22, 2023 (OPM, n.d.-b, 2024).

The studies' instrument, 2023 FEVS, was made available to all federal employees, with 1,609,839 receiving invites and a total of 625,568 completing the survey

(OPM, 2023a). Data was collected via a web-based self-administered survey, with eligible participants receiving an emailed invite and up to four survey reminders (OPM, 2023a). OPM provided public access to the data file, which required no permission for use. OPM employed a masking procedure to allow the data to be released publicly that included collapsing agencies and work units that do not meet a response number threshold, collapsing categories such as age into dichotomous responses, and collapsing groups considered at-risk due to small numbers of responses from groups with the same demographics and work unit that could be easily identifiable (OPM, 2023a). This impeded the ability to draw more meaning from intragroup differences and nuanced factor analysis. This was especially true with the age factor, as that normally continuous variable, being grouped into only two large categories, lost much of the analytical power for specific age or other generational groupings.

The FEVS used the exact same sample population and the largest possible data collection from the relevant individuals, therefore, it was sufficient for use in my instrument. Due to the common population and broad sample the FEVS provided, my results had external validity. The FEVS items representing telework usage, job satisfaction, age, and supervisory status were appropriate for use as near-exact operational definitions were used in both, with the same population. My primary inclusion criteria were federal employees who completed all relevant FEVS items on telework usage, job satisfaction, supervisory status, and age. I analyzed the entire available data set, comprised of complete responses, to take advantage of the power of such a large dataset.

Instrumentation and Operationalization of Constructs

The FEVS was originally developed in 2002 by the contracted research company Westat to capture tangible workplace attributes to collect employee perspectives on work conditions (OPM, 2024). The data collected was directly relevant to the current study as it contained relevant items on the variables of interest and was collected from the target population. OPM established validity through Westat performing two levels of quality control, both electronic and expert review, to ensure the data was reported accurately. Despite reliability not being established for the FEVS, there have been reviews of the previous overall body of research that relied on the FEVS as the data source and found that it produced sophisticated and comprehensive social research findings (Resh et al., 2021).

The FEVS had been used to explore a variety of research topics on federal employee perceptions. A 2018 study examined perceptions of effective leadership across a multi-generational sample from the FEVS (born between the years of 1922 and 2000, with a sample of 421,748), found that a nonsignificant relationship between generational cohorts' view of leadership (Arrington & Dwyer, 2018). Junior et al. (2024) reported a Cronbach's alpha coefficient of >0.85 (p <.001, 95% CI). They reported a statistically significant difference between genders in perceptions of leadership, diversity, equity, inclusion, and job satisfaction. A study on how job-related knowledge sharing and information availability impact job satisfaction reported Cronbach's alpha coefficients between 0.74 and 0.91 for all three variables, found a positive relationship between knowledge sharing and job satisfaction, with information availability partially mediating

the relationship (Fischer & Döring, 2022). Validity for the FEVS was established in Fischer and Döring (2022) via inter-item correlation, whereas it was not mentioned in the Junior et al. (2024) study.

Several items in the FEVS cover the topic of telework and job satisfaction, and I used the broadest, most general questions available to represent both variables. The FEVS provided the response coding used in data capture or their masked, grouped coding to protect participant anonymity. For telework, dummy-coded variables were created to compare each possible response category to the one that represented no telework usage (response option 3 = "Does not telework; required to be on site, has technical issues, or did not receive approval"). The telework item I used read, "Please select the response that BEST describes your current teleworking schedule." The response options included: 1 = Teleworks frequently or has a remote telework agreement, 2 = Teleworks infrequently; ranging from as-needed up to 2 days a week, 3 = Does not telework; required to be on site, has technical issues, or did not receive approval, or 4 = Chooses not to telework (OPM, n.d.-b).

Job satisfaction was represented by the question, which read, "Considering everything, how satisfied are you with your job?", with response options of 5 = Very Satisfied, 4 = Satisfied, 3 = Neither Satisfied nor Dissatisfied, 2 = Dissatisfied, or 1 = Very Dissatisfied (OPM, n.d.-b). The job satisfaction variable showed sufficient validity based on previous research to act as the singular dependent variable for my study (Resh et al., 2021; Notgrass, 2015; Wang & Brower, 2019). Both of my moderating variables were captured in single demographic items in the FEVS. For age, the item read, "What is

your age group?" and the responses were coded as options of A = Under 40 and B = 40 or Older in the publicly available file. Supervisory status was captured by the item, "What is your supervisory status?" with the response options of A = Non-Supervisor/Team Leader or B = Supervisor/Manager/Executive (OPM, n.d.-b). These responses were coded as 0 for Under 40 and Non-Supervisor/Team Leader and 1 for 40 or Older and Supervisor/Manager/Executive, respectively.

Data Analysis Plan

The IBM Statistical Package for the Social Sciences (SPSS) program version 30 was used to analyze the data. Data was cleaned and prepared for analysis by checking for completion and removal of those who had incomplete responses on all four items. Cases with missing values on any of the variables included in each regression model were excluded using SPSS listwise deletion. Linear regressions were conducted to look for relationships between telework and job satisfaction, with age and supervisory status, and each was tested as a possible moderator using an interaction variable to represent each age and supervisory status with telework usage. Statistical significance was set at $p < .05$.

The research questions and hypotheses I explored included:

RQ1: To what extent is telework usage related to job satisfaction in federal employees?

*Ho*1: There is not a statistically significant relationship between telework usage and job satisfaction in federal employees.

$H_1$1: There is a statistically significant relationship between telework usage and job satisfaction in federal employees.

RQ2: To what extent does age moderate the relationship between telework usage and job satisfaction?

*Ho*2: Age does not have a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

$H_1$2: Age has a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

RQ3: To what extent does supervisory status moderate the relationship between telework usage and job satisfaction?

*Ho*3: Supervisory status does not have a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

$H_1$3: Supervisory status has a statistically significant influence on the relationship between telework usage and job satisfaction in federal employees.

As each variable's related items had categorical responses, a linear regression test was used to inspect for meaningful relationships between each set of variables to answer the study's research questions. A simple bivariate linear regression was used to explore the first research question of whether telework is correlated with job satisfaction. For the other two research questions focused on age and supervisory status as moderators, a multivariable linear regression was used that included both moderating and interaction variables. Within the results, the *p*-value will be examined for significance ($p < .05$).

Threats to Validity

I did not use any interventions, and neither did the original survey used to collect the data, but external validity could still be impacted due to the lack of construct

validation data made available by the developers. Construct validity, or evidence that the survey item measures the construct it was intended to measure, is often tested using factor analysis and is often presented in terms of Cronbach's alpha coefficient (Markus & Lin, 2022). This issue has led to researchers such as Fernandez et al. (2015) and Resh et al. (2021) to raise concerns about the FEVS' validity. While the construct of job satisfaction has been researched independently to show validity (Resh et al., 2021; Notgrass, 2015; Wang & Brower, 2019), the telework item used was only added to the 2020 FEVS as a result of the pandemic, and no evidence is available of its validity (OPM, 2021).

Internal validity of my study may be threatened by the FEVS testing procedure for participants, such as reusing items that become expected or responding in a more desirable way than their actual perceptions (Leighton, 2022). Due to the FEVS dataset being available posteriori, the ability to influence the items or participants was not available, however, the repetition of item use has encouraged stabilized operationalized constructs like job satisfaction over time (Somers, 2018). The FEVS offered incomparable statistical power due to its scope and scale to overcome possible threats, particularly when evidence from literature using the FEVS and testing the FEVS have found satisfactory reliability and validity measures.

Ethical Procedures

No agreements or permissions were necessary for my data set, and due to the data being archival, no recruitment, data collection, or interventions were employed. The data had been masked by the originators, OPM, and I made no reference to variables beyond

the necessary telework usage, job satisfaction, age, and supervisory status to ensure further protection of respondents and their home organizations. No confidential or anonymous information was available in the data set.

Summary

I analyzed the 2023 FEVS data to answer the questions of whether age and supervisory status moderated the relationship between telework and job satisfaction, as well as defining the unmoderated relationship between telework and job satisfaction. The only exclusion of responses was those that were incomplete in the relevant items necessary to answer the research questions. Analysis was completed by a bivariate and multivariable linear regressions. I sought to find an association with no intent of uncovering possible causal directions or predictability between variables due to the novel nature of this subject. The following chapter reports the findings from the analysis of how telework and job satisfaction are correlated and how age and supervisory status moderate that relationship.

Chapter 4: Results

Introduction

In this chapter, I present the results of the bivariate analysis and multivariable linear regression analyses conducted to examine the relationship between job satisfaction with teleworking, age, and supervisory status. The following research questions were explored: (a) To what extent is telework usage related to job satisfaction in federal employees?, (b) To what extent does age moderate the relationship between telework usage and job satisfaction?, and (c) To what extent does supervisory status moderate the relationship between telework usage and job satisfaction? The chapter begins with an explanation of data preparation and frequency statistics of the study variables. The results of the linear regression analyses are then presented, first bivariate to explore telework and job satisfaction and then a multivariable regression to examine moderation effects. A second multivariable regression is reported to understand the main effects of all variables and assist with understanding and interpreting the results.

Analysis

To prepare the data for analysis, I uploaded it to IBM SPSS version 30. The values for each of my relevant survey items were updated to reflect the original coding used in the survey. The telework variable was dummy coded into three binary variables: choosing not to telework (Telework_Choose), teleworking some of the time (Telework_Some), and teleworking frequently (Telework_Freq). For each dummy variable, the category of interest was coded as 1, with all the other options coded as 0. The reference group consisted of employees who were unable to telework due to onsite

requirements, lack of approval, or technical limitations. This dummy coding allowed for more interpretable regression coefficients, representing the mean difference in job satisfaction for each telework category relative to those unable to telework (Nisbet et al., 2009). Interaction variables were created using the SPSS Compute Variable function, where the responses for the interactions of interest were recoded into numeric values (age: 0 for 'Under 40' and 1 for '40 or Older', and supervisory status: 0 for 'Non-Supervisor/Team Lead' and 1 for 'Supervisor/Manager/Executive). The moderator's numerically coded responses were then multiplied by the telework dummy-coded variables to create a new variable representing the interaction's product for each moderator. The job satisfaction item was treated as a continuous variable on a 5-point Likert scale (where 1 represents 'Very Dissatisfied' and 5 is 'Very Satisfied'), which aligned with the original survey coding.

For the analysis, cases with missing values on any of the variables included in each regression model were excluded using listwise deletion. SPSS automatically applied this approach during the bivariate and multivariable regression analyses. As a result, all reported analyses are based on complete cases only. The total number of cases retained for analysis was n = 591,525, based on respondents with valid data for all relevant variable items in each respective model. A total of 27,575 partial responses were not included in my sample.

Results

Frequency Statistics

Frequency statistics were explored to establish an understanding of responses to each of the items of interest and categories (Table 1). Most responses to the telework item indicated frequent telework (44.8%), with the option of choosing not to telework receiving the fewest responses at 3.6% of the total 597,994 valid responses to the telework item. 67.5% of the respondents indicated that they were 40 or older, and 73% were supervisors, managers, or executives, with both the age and supervisory status items having the same response totals of 625,568. Finally, the job satisfaction item saw 597,993 valid responses, with the most reporting 'Satisfied' (40.4%), and 67.1% reporting positive job satisfaction of either 'Satisfied' or 'Very Satisfied'. The frequency of missing values is also provided in Table 1, ranging from 4.4% for both the telework and job satisfaction items, 6.6% missing from the supervisory status item, and 10.2% missing from the age item. These results indicate that most respondents were older, in supervisory roles, frequently teleworked, and reported generally high job satisfaction.

Table 1

Response Frequencies

	N	%
Teleworking Item		
Teleworks frequently or has a remote work agreement	280207	44.8%
Teleworks infrequently; ranging from as-needed up to 2 days a week	173692	27.8%
Does not telework; required to be on site, has technical issues, or did not receive approval	121458	19.4%
Chooses not to telework	22637	3.6%
Missing	27574	4.4%
Age Item		
Under 40	139439	22.3%
40 or Older	422557	67.5%
Missing	63572	10.2%
Supervisory Status Item		
Non-Supervisor/Team Leader	456891	73.0%
Supervisor/Manager/Executive	127624	20.4%
Missing	41053	6.6%
Job Satisfaction Item		
Very Dissatisfied	29487	4.7%
Dissatisfied	55956	8.9%
Neither Satisfied nor Dissatisfied	92869	14.8%
Satisfied	252817	40.4%

	N	%
Very Satisfied	166864	26.7%
Missing	27575	4.4%

Assumption Checks

Collinearity was examined between each of the variables, telework, age, and supervisory status, with job satisfaction via multivariable linear regression. The Durbin-Watson statistics were 2.00 for the model, indicating no autocorrelation in residuals. Variance inflation factors (VIFs) ranged from 1.568 to 5.432 (Table 6). Although a few variables (e.g., Telework_Freq, Tele_Choose_Age, Tele_Freq_Age) had VIFs slightly above 5, all values remained well below the conservative threshold of 10, indicating that multicollinearity was not a significant concern. Collinearity diagnostics indicated no significant multicollinearity with main effect variables and interaction terms included. The highest condition index was 10.60, and no two or more predictors had variance proportions greater than .50 on the same dimension. These results support the stability of regression estimates, within the critical threshold of 10 to 30 for condition indices and just barely breaking the bottom of the range of 5 to 10 for VIF (Kim, 2019).

Telework Usage and Job Satisfaction

Bivariate linear regressions were conducted to examine the association between teleworking frequency and job satisfaction (RQ1: To what extent is telework usage related to job satisfaction in federal employees?). Each model included one dummy-coded telework variable, with “unable to telework” serving as the reference group. The first model examined whether choosing not to telework (Telework_Choose) correlated

with job satisfaction. The model was not statistically significant, $F(1, 591{,}523) = 0.133$, $p = .716$, and explained none of the variance in job satisfaction ($R^2 = .000$; Table 2). This indicates that, when considered alone, choosing not to telework was not associated with differences in job satisfaction compared to those unable to telework. There was found to be no detectable linear association between choosing not to telework and job satisfaction, $\beta = 0.000$, $p = .716$ (Table 3), and the estimated difference from those who do not telework was –0.001 on a 5-point scale.

Table 2

Model Summary for Chose Not to Telework and Job Satisfaction

					Change statistics				
Model	*R*	*R* Square	Adjusted *R* Square	*SE* of the Estimate	*R* Square Change	*F* Change	*df*1	*df*2	Sig. f Change
1	.000[a]	.000	.000	1.099	.000	.133	1	591523	.716

a. Predictors: (Constant), Telework_Choose

Table 3

Coefficients for Chose Not to Telework and Job Satisfaction

		Unstandardized coefficients		Standardized coefficients			95.0% Confidence interval for B	
Model		B	*SE*	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	3.791	.002		2235.227	<.001	3.788	3.795
	Telework_Choose	-.001	.003	.000	-.364	.716	-.007	.005

a. Dependent Variable: Job Satisfaction Item

The second model tested the association between infrequent telework (Telework_Some) and job satisfaction. The model was statistically significant, $F(1,$

591,523) = 13,078.37, $p < .001$, and explained approximately 2.2% of the variance in job satisfaction ($R^2 = .022$; Table 4). The negative coefficient indicates that employees who teleworked infrequently reported significantly lower job satisfaction than those who did not telework (Table 5). The third model assessed the relationship between frequent telework (Telework_Freq) and job satisfaction. The model was also statistically significant, $F(1, 591{,}523) = 165.90$, $p < .001$; however, it explained less than 0.1% of the variance in job satisfaction ($R^2 < .001$; Table 6). Although the finding was statistically significant due to the large sample size, the effect size was negligible and not practically meaningful, despite the positive $\beta = .097$ (Table 7).

Table 4

Model Summary for Infrequent Telework and Job Satisfaction

					Change statistics				
Model	*R*	R^2	Adjusted R^2	*SE* of the estimate	R^2 Change	*F* Change	*df*1	*df*2	Sig. *F* Change
1	.147[a]	.022	.022	1.087	.022	13078.371	1	591523	<.001

a. Predictors: (Constant), Telework_Some

Table 5

Coefficients for Infrequent Telework and Job Satisfaction

		Unstandardized coefficients		Standardized coefficients			95.0% Confidence interval for B	
Model		B	*SE*	Beta	*t*	Sig.	Lower Bound	Upper Bound
1	(Constant)	3.872	.002		2447.206	<.001	3.869	3.875
	Telework_Some	-.402	.004	-.147	-114.361	<.001	-.409	-.395

a. Dependent Variable: Job Satisfaction Item

Table 6

Model Summary for Frequent Telework and Job Satisfaction

					Change Statistics				
Model	*R*	*R* Square	Adjusted *R* Square	*SE* of the Estimate	*R* Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change
1	.017[a]	.000	.000	1.099	.000	165.900	1	591523	<.001

a. Predictors: (Constant), Telework_Freq

Table 7

Coefficients for Frequent Telework and Job Satisfaction

		Unstandardized coefficients		Standardized coefficients			95.0% Confidence interval for B	
Model		B	*SE*	Beta	*t*	Sig.	Lower bound	Upper bound
1	(Constant)	3.787	.001		2600.867	<.001	3.784	3.790
	Telework_Freq	.097	.007	.017	12.880	<.001	.082	.111

a. Dependent Variable: Job Satisfaction Item

Main Effects Regression Model

To clarify the nature of the relationships observed, a regression model was conducted that included only the main effects, using the dummy-coded telework variables, the non-interaction age and supervisory status variables, and job satisfaction. This model was statistically significant, $F(5, 552676) = 3486.88$, $p < .001$, explaining 3.1% of the variance in job satisfaction ($R^2 = .031$, Adjusted $R^2 = .031$) with a Durbin-Watson statistic of 2.001 (Table 8).

Table 8

Model Summary for Main Effects

					Change statistics					
Model	*R*	*R* Square	Adjusted *R* Square	*SE* of the Estimate	*R* Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	Durbin-Watson
1	.175[a]	.031	.031	1.078	.031	3486.879	5	552676	<.001	2.001

a. Predictors: (Constant), SupvStat_Code, Telework_Some, Telework_Freq, Age_Code, Telework_Choose

b. Dependent Variable: Job Satisfaction Item

Compared to employees who were unable to telework (reference group), those in all other telework categories reported lower job satisfaction. Choose not to telework (Telework_Choose) saw a $\beta = -0.061$, $p < .001$, infrequent telework 2-3 days (Telework_Some) $\beta = -0.169$, $p < .001$, and frequent telework, remote agreement (Telework_Freq) $\beta = -0.011$, $p < .001$ (Table 9). However, older employees and supervisors reported significantly higher job satisfaction, with age having a result of $\beta = 0.045$, $p < .001$, and supervisory status $\beta = 0.048$, $p <. 001$. These findings demonstrate that, in general, employees who engaged in any form of telework reported lower job satisfaction than those unable to telework. However, older workers and supervisors tended to report greater satisfaction overall.

Table 9

Coefficients for Main Effects

					95.0%	
Model	Unstandardized coefficients	Standardized coefficients	*t*	Sig.	Confidence interval for B	Collinearity statistics

		B	*SE*	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	3.832	.003		1150.452	<.001	3.826	3.839		
	Telework_Choose	-.147	.003	-.061	-42.775	<.001	-.154	-.140	.860	1.162
	Telework_Some	-.460	.004	-.169	-119.208	<.001	-.468	-.452	.872	1.147
	Telework_Freq	-.061	.008	-.011	-7.854	<.001	-.076	-.046	.960	1.042
	Age_Code	.114	.003	.045	33.529	<.001	.107	.121	.974	1.027
	SupvStat_Code	.128	.004	.048	35.927	<.001	.121	.135	.966	1.035

a. Dependent Variable: Job Satisfaction Item

Age and Supervisory Status as Moderators

A multivariable linear regression was conducted to examine whether age and supervisory status moderated the relationship between teleworking and job satisfaction. The model included the telework dummy variables, age, and supervisory numerically coded variables as well as the interaction variables Tele_Choose_Supv, Tele_Choose_Age, Tele_Some_Supv, Tele_Some_Age, Tele_Freq_Supv, and Tele_Freq_Age to represent possible moderation effects. These interaction variables were used to explore the second and third research questions (RQ2: To what extent does age moderate the relationship between telework usage and job satisfaction? RQ3: To what extent does supervisory status moderate the relationship between telework usage and job satisfaction?). The overall model was statistically significant, $F(11, 552{,}670) = 1610.63$, $p < .001$, and explained 3.1% of the variance in job satisfaction ($R^2 = .031$, Adjusted $R^2 = .031$), presented in Table 10. Although the model was statistically significant, the effect size was modest.

Table 10

Model Summary for Moderation

					Change statistics					
Model	*R*	*R* Square	Adjusted R Square	*SE* of the Estimate	*R* Square Change	*F* Change	*df*1	*df*2	Sig. *F* Change	Durbin-Watson
1	.176[a]	.031	.031	1.077	.031	1610.62	11	552670	<.001	2.001

a. Predictors: (Constant), Tele_Freq_Age, Tele_Some_Supv, Tele_Choose_Supv, Age_Code, Telework_Some, Tele_Freq_Supv, Telework_Choose, SupvStat_Code, Tele_Some_Age, Telework_Freq, Tele_Choose_Age

b. Dependent Variable: Job Satisfaction Item

Several significant moderation effects were observed in Table 11. In exploring RQ2, age was found to significantly moderate the associations between job satisfaction and all three telework categories, with choosing not to telework (Telework_Choose × Age) resulted in $\beta = -0.025$, $p < .001$, teleworking infrequently (Telework_Some × Age) saw a result of $\beta = 0.039$, $p < .001$, and teleworking frequently (Telework_Freq × Age) saw a $\beta = 0.020$, $p < .001$. These interactions suggest that for employees aged 40 and older, job satisfaction was higher at each level of telework use compared to younger employees, partially mitigating the negative associations found with telework alone.

Supervisory status also moderated the relationship between telework and job satisfaction, as posited in RQ3, but the effects were more limited. Choosing not to telework (Telework_Choose × Supv) resulted in $\beta = 0.012$, $p < .001$, and infrequent telework (Telework_Some × Supv) was also significant, $\beta = 0.004$, $p = .015$, whereas frequent telework results (Telework_Freq × Supv) $\beta = 0.004$, $p = .923$ were not statistically significant. These results indicate that supervisors who chose not to telework

or teleworked some of the time reported slightly higher job satisfaction than their non-supervisory counterparts in the same telework conditions. However, no moderation effect was observed for those who reported teleworking frequently.

Table 11
Coefficients for Moderation

Model	Unstandardized coefficients		Standardized coefficients			95.0% Confidence interval for B		Collinearity statistics	
	B	*SE*	Beta	*t*	Sig.	Lower bound	Upper bound	Tolerance	VIF
1 (Constant)	3.874	.004		886.955	<.001	3.866	3.883		
Telework_Choose	-.208	.007	-.086	-29.388	<.001	-.221	-.194	.204	4.900
Telework_Some	-.553	.007	-.203	-74.710	<.001	-.568	-.539	.236	4.229
Telework_Freq	-.152	.018	-.026	-8.650	<.001	-.186	-.117	.188	5.310
Age_Code	.064	.005	.025	12.714	<.001	.054	.074	.446	2.241
SupvStat_Code	.106	.006	.040	19.068	<.001	.095	.117	.396	2.525
Tele_Choose_Supv	.047	.008	.012	5.743	<.001	.031	.064	.413	2.421
Tele_Choose_Age	.065	.008	.025	7.971	<.001	.049	.081	.184	5.420
Tele_Some_Age	.122	.009	.039	14.051	<.001	.105	.139	.226	4.429
Tele_Some_Supv	.024	.010	.004	2.442	.015	.005	.043	.542	1.843
Tele_Freq_Supv	.002	.018	.000	.097	.923	-.033	.036	.638	1.568
Tele_Freq_Age	.117	.020	.018	5.965	<.001	.079	.156	.184	5.432

a. Dependent Variable: Job Satisfaction Item

Summary

The research questions were explored via regression analyses to identify the existence and significance of relationships between telework and job satisfaction (RQ1) and whether age (RQ2) or supervisory status (RQ3) moderated it. It was found that there was a significant positive relationship between telework and job satisfaction, rejecting the H_O1, and that both age and supervisory status had a partial moderation effect on the

relationship, resulting in an inability to reject H_O2 and H_O3. The following chapter will interpret these results and how they confirm or disconfirm the literature, as well as how they can be applied in practice.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

I explored the relationship between telework and job satisfaction and considered whether age or supervisory status moderated the relationship. The COVID-19 pandemic impacted work behaviors, preferences, and shifted the work itself in such a way that research on how workers respond to telework prior to the pandemic was presumed to no longer be applicable to modern workplaces (Ahmed & Singh, 2023; Barrero et al., 2023; Brown & Tousey, 2023; Torres & Orhan, 2023). I investigated the relationship between telework and job satisfaction in federal employees and whether age or supervisory status moderated it. I used a quantitative, non-experimental, and correlational design using secondary data from the 2023 FEVS.

Results from a linear regression indicated that compared to those who did not telework, those who infrequently or frequently teleworked, or even chose not to telework, reported lower job satisfaction. Age and supervisory status were significantly and independently associated with positive job satisfaction, and while age moderates every category of telework, supervisory status only moderates infrequent telework and those who chose not to telework. Older workers, 40 or older, showed an attenuation in the negative telework relationship with job satisfaction. Similarly, supervisory roles saw the negative link buffered, but only for those who teleworked infrequently or chose not to telework.

Although many respondents both teleworked and reported being satisfied, regression analysis revealed that employees who did not telework reported slightly higher

levels of job satisfaction than those who teleworked, even after adjusting for age and supervisory status. This suggested that while telework was widely used, it may not have been universally experienced as beneficial to satisfaction. These findings provided partial support for the hypothesized moderation effects and highlighted the complexity of how demographic and occupational factors influence telework experiences.

Interpretation of the Findings

My findings confirmed that teleworking had a significant correlation with job satisfaction as hypothesized for RQ1, however, contrary to much of the research reviewed, those who teleworked or chose not to telework reported slightly lower average satisfaction than those who did not telework. Age and supervisory status independently correlated with higher job satisfaction. $H_1 2$ suggested age would moderate the relationship, and it was found that age moderated every telework category (frequent, infrequent, and choosing not to), where participants older than 40 saw less of the telework-related drop in job satisfaction. Supervisory status showed moderating effects for choosing not to telework and infrequent telework but had no significant impact on job satisfaction when the participant reported frequent telework, in partial support for $H_1 3$. The largest deficit in job satisfaction was seen in those who teleworked infrequently and in younger, nonsupervisory federal workers. The findings, while significant, still only explain a relatively small amount of the variance in job satisfaction, suggesting that there is an impact, but other factors dominate overall morale.

The researchers who developed my grounding theories suggested that telework, age, and supervisory status would all impact job satisfaction, an idea supported by dozens

of other studies reviewed. SDT's Deci and Ryan (1985) focused on how satisfaction of the needs for competence, autonomy, and relatedness influences motivation. Telework offered greater physical autonomy from coworkers, but it may have had lower relatedness depending on the collaborative technologies available and organizational culture around virtual communication (Badura et al.,2023; Moens et al., 2022). Telework may also require skills less commonly used with on-site work, such as the ability to work independently or rely entirely on technology for communication and collaboration with others (Bakac et al., 2023). As the SDT's Deci and Ryan (1985) suggested, how someone's need for competence was fulfilled or not will impact their satisfaction. If workers had a high need for competence but lacked the skills to navigate telework, they may have experienced lower job satisfaction than those who either had a lower need for competence or had greater skills for successfully teleworking.

Supervisory status was found to moderate the relationship between telework and job satisfaction, buffering the negative correlation for those who infrequently teleworked or chose not to telework. Supervisory status's impact on job satisfaction was found to be particularly prevalent in cultures that value power, and those who work for the American government fall well within that category (Locke, 2020). Supervisory status offered autonomy through the ability to lead others, as well as feelings of competence to lead, both of which may have satisfied their needs for such, according to the SDT's Deci and Ryan (1985), but relatedness may not have occurred the same with subordinates or peers for those who are in a leadership role (Wallis et al.,2021). While both supervisory and non-supervisory employees saw their job satisfaction impacted by nonwork life stress,

supervisors tended to have higher pay and more favorable perceptions of organizational support, whereas their nonsupervisory counterparts reported lower satisfaction with life and job usefulness (Wallis et al., 2002). Altogether, supervisors may have greater odds of needing satisfaction, organizational support, and resources like pay to help with nonwork life stress, which are likely to positively impact satisfaction with one's job.

Age has foundational underpinnings in Carstensen's (1992) SST, which suggested that people's goals in interactions with others shift over time to fit their needs. While interaction was considered a tenet of growth and survival, the theory posited that older adults value smaller social circles with meaningful relationships, while younger people placed value on wider circles from which to gather information (Carstensen, 1995). Telework may have impacted a worker's ability to interact with a larger population beyond specific instances, such as a forum or established meeting intended for socializing, meaning younger workers may have felt limited in developing or maintaining their preferred wider circles. Meanwhile, an older worker's ability to limit superficial interactions and focus on the relationships that meant the most to them would have been expected to drive greater satisfaction (Carstensen et al., 1999). The established relationship between age and job satisfaction (Anser et al., 2020) was supported in my findings, and the foundation of preferences in relationships changing over time explained the moderation effects found with age.

While telework originated in the 1970s with less than half a percent working from home, by 2019, there was a rise to 17% (Barrero et al., 2023), and the federal workers who responded to the 2023 FEVS reported 72% teleworked 2 days a week or more

(OPM, 2023a). Despite the increase in telework, a previous study using 2020 FEVS data found that choosing to telework is negatively correlated to their satisfaction with the job itself, pay, and even the organization (Kim & Fay, 2024), corroborating my findings. It was possible that the results of both studies showing a negative relationship between telework and job satisfaction could suggest that the federal employee participants may have been otherwise satisfied with other parts of their jobs that were thereby impacted by the remote work environment. It was unlikely that participation in teleworking would have increased if workers knew it would make them less satisfied, making it more likely there may be second or third-order effects from the choice that impact their job satisfaction, such as lack of organizational support, resources, or work-life balance.

A concept explored in the literature review provided important context when considering my results: Benefits for job satisfaction from telework only remain where there was sufficient organizational support (Ahmed & Singh, 2023). Whether it be missing resources that would otherwise be available on site, technological issues, waning leadership support, or insufficient or ineffective communication, not all organizations have been able to support teleworkers sufficiently to drive job satisfaction (Ahmed & Singh, 2023; Atobishi & Nosratabadi, 2023; Badura et al., 2023; Chong et al., 2020; Doberstein & Charbonneau, 2022; Nugraha et al., 2022). As of the time the 2023 FEVS was administered, organizations were no longer operating in full quarantine, but the work was still spread across both on-site and telework. A reported increase from 52% teleworking in fiscal year 2022 to 57% in fiscal year 2023 was reported by OPM in their Status of Telework in the Federal Government Report to Congress, with 43% of those in

2023 participating in routine (frequent) telework (OPM, 2023b). This split in work environments would likely exacerbate issues where resources have not been readily available to all work modalities in a sufficient or equitable manner.

Much of the literature I reviewed found telework to be positively associated with job satisfaction among other positive employee attitudes and work outcomes (Boulet & Parent-Lamarche, 2022; Kazekami, 2020; Nugraha et al., 2022; Wesemann, 2023a). The autonomy to choose where work was completed was also found to relate to greater job satisfaction (Andrade et al., 2023; Brunelle & Fortin, 2021). While it may seem that the results of the current study were entirely contrary to these findings, the exploration and understanding of the impact of organizational and supervisory support could explain why postpandemic telework does not follow the same pattern. More than work-life balance policies and rules, tangible support and resources increased employee engagement and satisfaction, including family-supportive supervision (Lee & Shin, 2023; Walsh & Kabat-Farr, 2022). If federal agencies had only invested in policies without actual resources and impactful support, the choice in work environment was unlikely to recover the deficit in support and may have even exacerbated the perceived gap as workers were physically isolated from the organization.

Even studies completed during the peak of the pandemic found shifts in job satisfaction. During the pandemic, employees who participated in frequent telework were reported as the most satisfied with their jobs, with those who chose not to telework having the next closest reporting of satisfaction, and those who could not telework due to technical issues or a denied request were found to be the least satisfied (Lewis et al.,

2023). However, employees who teleworked during the pandemic reported a split in job satisfaction by the 10th month, with about half reporting greater job satisfaction due to the feeling of safety and the other half seeing less job satisfaction due to inadequate tools and environment to complete their work, moderated by the quality of their supervisor and management (Mullins et al., 2022). Job satisfaction was also correlated with job compatibility and relation to supervisors, peers, and subordinates, both of which would have changed drastically during the pandemic and after, as the work shifted from on-site to telework and back (Battaglio et al., 2022; Wang & Brower, 2019).

As discussed by Barrero et al. (2023), work arrangements could differ depending on work tasks and other environmental factors, and the responses selected by the 2023 FEVS participants lent support to that. The item response options in the FEVS spanned from the participants simply not teleworking, if they were required to be on site, had technical issues, or were denied approval to telework. While the response option had a range of situations together in one item, being required to work on-site or having technical issues could be attributed to having a role in the type of work tasks that cannot be done off-site. It has been found that federal employees who perceived they were prevented from teleworking report significantly lower job satisfaction, whereas those whose job requirements impaired telework saw no change in job satisfaction (Lee & Kim, 2018). Furthermore, with the majority of the respondents indicating they were older than 40, the findings reported by Brown and Tousey (2023) that telework occurred more with those in their 30s explained the robustness of the total amount of the sample population that either did not or chose not to telework.

Telework was not found to universally increase job satisfaction, as factors such as the ability to complete the work, the ability to disengage, and the ability to find work-life balance can all be impacted when the work exists in the home (Bakac et al., 2023; Chong et al., 2020; Elbaz et al., 2023). The resources available to employees, whether organizational support through technology, policies that promote autonomy and flexible business processes, and communication avenues, or personal resources, such as time and energy, impacted how telework correlated to job satisfaction (Anser et al., 2020; Choi, 2020; Gillet et al., 2019). The balance employees were able to strike between work and home also impacted job satisfaction, and with telework bringing the work into the home, there was a real possibility for balance and therefore greater satisfaction, but any possible imbalance was exacerbated (Battur & Kandagal, 2022; Shirmohammadi et al., 2022). For example, while telework could offer more time to spend with family at home, a lack of social support systems such as childcare, high home responsibility time requirements, and the boundaries of work and home blurring all could have led to feelings of imbalance and lower job satisfaction (Battur & Kandagal,2022; Mele et al., 2023; Shirmohammadi et al., 2022; Urbanavičiūtė et al., 2023; Wiens et al., 2023).

Evidence gathered from previous studies suggested that employees satisfied with their job and organization were less likely to prefer to telework (Kim & Fay, 2024), but the current study not only finds a large majority of respondents teleworking but also overall saw very high rates of job satisfaction within the sample. It is possible that the federal employees responding to the 2023 survey were less happy with their company or jobs, but it could also be indicative of the type of personality that thrives in telework,

which was prevalent at that time. Those with lower conscientiousness may have preferred to telework but reported lower job satisfaction than their higher conscientiousness counterparts (Bakac et al., 2023; Moens et al, 2022). However, competing personality factors, such as self-regulation and autonomy, were found to be related to a greater preference for telework (Bakac et al., 2023). As such, my results supported not only those findings but the SDT, where supervisor status (high autonomy) and age (high self-regulation) both saw positive main effect relationships with job satisfaction.

My results supported the findings reviewed in the literature, suggesting that age was positively associated with job satisfaction, something found in both the main and moderating effects of age (Cavanagh et al., 2020). The relationship was not without external and internal influences from interactions with people of other ages, where feelings of cohesion drive greater job satisfaction (Arrington & Dwyer, 2018; Fasbender & Drury, 2022) or perceptions of one's age, with higher subjective age resulting in lower job satisfaction through burnout (Anser et al., 2020). Consistent with these findings, the current analysis showed that employees aged 40 or older, who made up the majority of respondents, were less susceptible to the drop in satisfaction associated with every telework category. Age appeared to act as a buffering factor, possibly through rich professional networks and relationships, that mitigated the relational strain of telework.

Older employees have been found to have different values, priorities, and needs in their jobs and organizations. While younger people valued monetary rewards, even over-rewards in relation to effort or performance, older employees reported higher job satisfaction through task contribution and pay that matched it, with over-reward actually

dropping job satisfaction (Kollmann et al., 2020). Younger employees found satisfaction through crafting their job tasks and respect through autonomy, and older employees preferred to craft their jobs cognitively and had a stronger sense of person-job fit to increase their satisfaction (Hakanen et al., 2018; LaGree et al., 2023; Li et al., 2023). This would suggest that the older employees who responded to the 2023 FEVS felt they had impactful task contribution, pay that matched their work, a person-job fit, and the ability to bring their years of experience and knowledge to their jobs, whereas the younger employees may not have felt they were rewarded enough or able to control their tasks and practice autonomy. With the rigid pay structure of the government and specific mission sets of individual agencies, it was very likely that these factors were at play in the study's sample and helped explain the significant findings with age.

Similarly, the study's results supported the findings reviewed in the literature that supervisory status was positively correlated with job satisfaction (Locke, 2020), but was only partially supported in the moderation analysis. This could be explained by factors such as greater autonomy leading to higher job satisfaction paired with greater work demands and lower work-life balance, which negatively impacted satisfaction (Andrade et al., 2021; Wallis et al., 2021). How these factors interplay for individuals was unique to each person, and for both supervisors and non-supervisors, the impact of non-work life challenges further negatively impacted job satisfaction, creating a confluence of factors beyond just the role or work environment itself, driving satisfaction (Wallis et al., 2021).

For supervisors, the responsibility they have for approving their subordinates' telework opportunities and managing their subordinates' work and productivity while

teleworking introduced another confounding factor that impacts their view of telework and their subordinates' perception of telework (Buick et al., 2024; Lembrechts et al., 2018; Park & Cho, 2022). For nonsupervisors, being denied telework may have felt like a loss of autonomy, but for supervisors, navigating and managing their subordinates' telework relied on pre-established trust, relationships, and their proficiency as a supervisor and may have felt like a risk when there was task interdependence on the subordinate's work and performance (Buick et al., 2024; Hamrick et al., 2024; Lembrechts et al., 2018; Park & Cho, 2022).

These complex factors can explain my seemingly conflicting results, as supervisory status had significant positive main effects on job satisfaction, but only moderated the relationship between telework and job satisfaction for those who chose not to telework and those who teleworked infrequently and had no moderation effects for those who frequently teleworked. Choosing not to telework likely translated into feelings of autonomy, which helped negate the negative relationship between telework and job satisfaction, but may also reflect a work environment preference realized. The lack of moderation effects for those who frequently telework and the presence of moderation effects for those who infrequently telework could be explained by the availability of pre-established trust, relationships, and supervisor proficiency, as well as whether the organization has policies to support flexible work arrangements (Hamrick et al., 2024; Lee & Shin, 2023).

While it was not feasible to control personal or nonwork factors impacting job satisfaction, managerial processes could overcome impacts on age-inclusiveness,

productivity, engagement with work, and therefore job satisfaction (Buick et al., 2024; Chu et al., 2022; Fasbender & Gerpott, 2022). Such policies may have had immediate effects on how supervisors approve, support, or encourage telework, but they also had downstream effects on the workers, who had the resources and support they needed to thrive both on-site and off-site. Supervisory status not moderating those who frequently telework suggested that there may be a dearth of supportive policies for supervisors, and the negative correlation between telework and job satisfaction found within this sample further supported the idea that something was going wrong in how people were perceiving or able to feel successful, and thus satisfied, while teleworking in the federal government.

Limitations of the Study

My sample was focused on federal employees who were employed as of November 2022, and any policy changes that have occurred since threaten the generalizability of my findings. As of January 20, 2025, President Trump and the White House released a memorandum requiring federal agencies to terminate remote work agreements, with exceptions requiring senior leaders to approve, and only for specific cases (The White House, 2025a). Generalizing these findings to future federal employees may not be as helpful for organizational policies and practices as understanding potential shifts in employee sentiment in the telework environment at that time. For example, if telework is limited or entirely unavailable and job satisfaction is shifting, my findings could help explain some of the reasons for that, but cannot account for the multitude of other variables ranging from workplace factors to societal influences.

The way the telework variable was coded by the originators also threatens the reliability of my study and the FEVS results. With the categories provided to federal workers to choose between, there were some scenarios that could have fallen between options and resulted in different results. The available categories to choose between were: (a) teleworks frequently or has a remote work agreement, (b) teleworks infrequently, ranging from as-needed up to 2 days a week, (c) does not telework; required to be on site, has technical issues, or did not receive approval, and (d) chooses not to telework. The second option of teleworked infrequently was given a quantity per week, and while it could be presumed that frequently denotes more than 2 days, it is not clear. Furthermore, the multi-barreled options that were given alongside does not telework are not mutually exclusive, as not receiving approval (denied telework) is not always understood as the same as having technical issues (cannot telework). In a situation where a worker may have a telework agreement to allow them to do things like training at home, while their day-to-day work requires on-site completion, it is not intuitive which of the options they may choose, potentially impacting participant responses.

The inability to expand upon the demographic moderation variables, age and supervisory status, meant that there was no opportunity to determine intragroup variations. The 2023 FEVS collected more detailed age information from respondents, however, the publicly available data file was cleansed of the specific responses. The public data file grouped the age responses into two categorical options to protect respondents from possible adverse impact, but this resulted in limited ability for analysis for intragroup variations.

The supervisory status variable is particularly impacted, as it combined supervisor, manager, and executive as one response category. These roles often entail different levels of responsibility and appear at different echelons across agencies. Therefore, they may engage with and perceive telework in distinct ways that the present coding cannot detect. I did not include additional stratification by tenure or domain-specific satisfaction, such as with their organization, but the literature would suggest that there may be further insights found within those responses. Incorporating nuanced demographics could enable future research to discover new subgroup differences and contribute to the body of literature exploring these factors for understanding and organizational recommendations.

A potential limitation when using secondary data is that there will be no access to follow up with further data collection or to manipulate how data is captured. This secondary data set gives access to the broadest possible sample and therefore has the most capacity for being representative of the federal government as a whole. While primary data collection allows for direct access to the sample, should there be a need to introduce a mixed method or follow-up data capture, the use of secondary data eliminates that possibility. The sample population consists entirely of federal employees and may limit the results to being generalizable only to federal government employees.

A possible barrier is the availability of information beyond the specific items used in the FEVS to apply and understand the meaning of the results. The items of the FEVS cannot be changed to elicit specific information. The context, explanation, and understanding of the items will have been entirely established by OPM, which may mean

the results will be impacted accordingly. The public results are missing some of the sensitive demographic data collected, which may limit the analysis that can be completed due to the missing data. I also report the separation of my roles as a potential challenge, as I am a federal employee and subject to the possibility of bias due to personal experience.

Recommendations

A recommendation for future research is to build on my study by exploring the same items using the same analytical method from a different fiscal year's survey. As the literature reviewed found, sentiments have changed from pre- to postpandemic, and more meaning can be drawn from understanding trends over time than just a standalone year's results. As the government reduces or eliminates telework, it will be imperative that researchers continue exploring the topic of how it may or may not relate to job satisfaction, as well as what other variables are involved, to provide tangible and data-driven guidance to agencies looking to understand their workforce and make the best business decisions. As the 2025 FEVS survey was not delivered per OPM acting director guidance, reliance on prior years' data may be the only option for all organizations until it is restarted or a new federal government-wide data source is established (OPM, 2025).

Future research should expand upon my results by considering work location preferences, especially compared to practice, to discover how preference achievement or denial impacts job satisfaction. The 2023 FEVS contained a single item on telework that focused on respondent usage and frequency, but included no questions regarding preferred work arrangements or broader preference fulfillment. Consequently, the present

study could not assess whether respondents' telework practices aligned with their desires, a factor central to SDT, in which Deci and Ryan (1985) posited that satisfaction depends on the extent to which individual needs and preferences are met. Survey instruments that capture both the employee's preferred work location and their actual telework behavior would permit analyses of preference congruence. Such data would illuminate whether satisfaction is driven primarily by the objective amount of telework or by the degree to which employees are able to realize their preferred work configuration.

Finally, future research can examine the same research questions qualitatively to allow workers to expand upon their lived experience and the specific factors in their lives that influence their workplace preferences and what drives their job satisfaction. This would overcome my biggest limitation, as it is bound to only the items available on the FEVS and the format of the item response categories, and a qualitative study would enable the researcher to capture much more nuanced information for analysis. Furthermore, where I did not consider more variables beyond telework, job satisfaction, age, and supervisory status, a qualitative study would organically uncover common themes driven by the participants rather than being restricted to specific topic items.

Implications

As the federal government navigates not only the postpandemic world of work but also the dramatic shifts in workforce size, mission areas, and performance as directed by The White House (2025b), understanding how to leverage resources to drive job satisfaction will be imperative to retaining and recruiting talent needed to serve the American people. Understanding the influences on job satisfaction as they relate to

telework will assist future researchers in understanding any changes in job satisfaction that may be found in future FEVS. The federal government is unique in that it is not only a network of individual organizations but also has a direct and significant impact on American society due to its critical and life-saving services. As job satisfaction is related to employee performance, commitment (Ahmed & Singh, 2023; Nugraha et al., 2022), increasing that benefits the country as a whole via the work being done and the workforce being entirely citizens.

My findings lend support to both the SDT and SST, grounding them. For SDT, while teleworking may increase autonomy, it can erode relatedness to others and challenge competence with technology and navigating work and nonwork responsibilities, impacting satisfaction in unique ways for individuals. Carstensen's (1992) SST explains the differences found between age groups and their reaction to telework, where an increase in age saw an increase in job satisfaction in the federal workforce, and age moderated the negative relationship between telework and job satisfaction. Where younger people thrive with a larger social circle with a variety of meaning to the relationships and greater amounts of feedback to learn from and improve, older workers tend to have less need for broader, superficial networks, and telework may afford them a chance to conserve personal resources to focus on meaningful experiences.

Practical implications that could be drawn from my study should focus on where job satisfaction was the lowest: among younger employees and those who may telework infrequently. Policies that encourage autonomy of work environment choice will benefit all employees regardless of age group or supervisory status. As those who worked on site

reported the highest job satisfaction, organizations should look to reward them through age-sensitive offerings such as roles that allow for task-crafting for younger populations or knowledge-sharing sessions for older workers. Organizations should invest in supervisor proficiency to benefit the supervisors and their subordinates in navigating work relationships, performance, and feedback, no matter the work location environment.

Policies around telework should focus on the operational side of work, establishing formal expectations, feedback, and resources to support the work. The assumption that teleworking universally increases job satisfaction was not supported by my results. The generalizability of these findings may only apply to the study sample, as in the time since the 2023 FEVS was administered, the federal government has been directed to reduce or eliminate teleworking altogether. As such, organizations should take a proactive approach to understand the current state of their workforce, such as surveying for preferences, need satisfaction, appropriate application of rewards, and overall employee sentiment to inform their policy-making and business decisions. This will allow them to identify at-risk subgroups, gaps in organizational offerings, and opportunities to improve to meet their workforce's needs within their current operational environment and resource availability. The implications for positive social change include the potential for federal government leaders and personnel management to adopt these strategies to sustain morale while preserving the benefits of teleworking flexibility.

Conclusion

I explored how telework relates to job satisfaction in the federal workforce that participated in the 2023 FEVS and whether age and supervisory status moderated that

relationship. Contrary to much of the literature reviewed, teleworking infrequently, frequently, and choosing not to telework were associated with lower job satisfaction than those who did not. Employees aged 40 or older, and to a lesser extent those in supervisor roles, experienced a smaller reduction in satisfaction when teleworking. Taken together with the theoretical underpinnings of the Self-Determination Theory and Socioemotional Selectivity Theory, these results suggest that telework can undermine relatedness and competence needs of workers unless they possess the experience, autonomy, or emotional regulation strategies characteristic of older workers and supervisors.

Telework is not a one-size-fits-all solution for employee well-being. The present findings underscore the need for policies that address hybrid-work challenges, such as structured feedback, autonomy of choice in the work environment, the ability to craft roles or share knowledge, and supervisor proficiency, rather than assuming universal benefits from broad scope policies and telework alone. By prioritizing these areas, organizations target the subgroups I identified as at risk of low job satisfaction: young and non-supervisory employees, and hybrid teleworkers. As there is an active shift in federal government policy driven by the Presidential administration, my results and the literature reviewed highlight the importance of understanding a workforce within its current environment, whether that be during a pandemic, in recovery, or in times of flux, to understand how current policies and processes impact the job satisfaction of the different demographic populations, and work to identify and meet their needs in customized, impactful ways.

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Appendix A: Secondary Data Set Source

2023 Federal Employee Viewpoint Survey (FEVS). https://www.opm.gov/fevs/public-data-file