# Remote Work and Employee Well-being: A Longitudinal Study of Management Strategies

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**ABSTRACT**

The effectiveness of particular management techniques in maintaining worker well-being in remote work environments is examined longitudinally in this paper. Strong academic research into organizational procedures that guarantee employee sustainability is required due to the quick and extensive institutionalization of remote work1. We conceptualize managerially controlled behaviors, particularly autonomy support and communication clarity, as essential job resources intended to mitigate the inherent demands of working remotely (e.g., isolation, blurred boundaries), based rigorously on the established Job Demands-Resources (JD-R) model2. Data were collected using a three-wave panel design ($N=500$) gathered over a 12-month period and examined using Latent Growth Modelling (LGM), a structural equation modelling (SEM) method that is ideal for figuring out individual change trajectories.3 The important aspects of well-being were examined: work-life balance, career well-being, and mental/emotional well-being. The findings show that management strategies significantly predicted the variance in this rate of change (Conditional LGM), even though general well-being trajectories showed a slight average decline (Unconditional LGM). In particular, the slope of career well-being and mental/emotional well-being was positively predicted by high managerial autonomy support ($\beta = 0.35$, p<.001$) and clear communication guidelines ($\beta = 0.20$, p<.001$), indicating a motivational process. On the other hand, high employee perceptions of opaque surveillance, presented as a persistent work requirement, considerably confirmed the process of health impairment by accelerating the negative decline in mental/emotional well-being ($\beta = -0.25$, p<.001$). These results offer solid proof that managers' provision of job resources is essential for creating long-lasting remote work environments. They also guide best practices for human resource management (HRM), emphasizing outcomes-based performance measurement and trust over intrusive surveillance

**Keywords**: Latent Growth Modelling, Psychological Safety, Employee Well-Being, Job Demands-Resources Model, Longitudinal Study, Management Strategies, Autonomy.,
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## 1. INTRODUCTION:

### 1.1. The Challenge of Well-Being and the Transformation of Work:

Global events have significantly accelerated the shift to widespread remote working, which includes telework and working from home (WFH) and has drastically changed the organizational landscape.1 Due to this change; employers now have direct responsibility for employees' health and wellbeing. Employees home environment, necessitating a new balance between personal and professional life.1 but not all employees have benefited equally from the change.

equally from the change. Mixed effects on performance and well-being are revealed by aggregate research 5, Numerous analyses reveal alarming trends, including higher rates of mental illness (38.8%), stress (28.4%), anxiety (23%), and poor sleep quality (56.4%).6 This disparity in results—some remote workers experience loneliness and exhaustion, while others report improved life quality and self-efficacy 6—indicates that managerial practices and organizational context play a crucial

mediating role in determining the long-term effects of remote work[5].

## 1.2. Envisioning Long-Term Employee Welfare

This study uses a holistic and strategic definition of employee well-being in order to thoroughly evaluate the long-term effects of managerial interventions. A greater variety of emotional, mental, social, financial, and professional aspects are included in well-being, which goes beyond simple physical health (wellness programs like exercise or snacks).[8] With an emphasis on critical components like autonomy, workload, and psychological safety, true organizational well-being reflects whether employees can sustainably perform their roles without sacrificing their personal lives or health.[8] Our outcome variables, which measure how workers feel about their jobs and at work, are based on the science of subjective well-being.[9] This encompasses the perception of meaning or purpose, the affective or emotional experience of work, and evaluative job satisfaction.[9] Organizations can obtain a leading indicator of sustainability by monitoring the evolution of subjective satisfaction and emotional experience over time. Intrinsically connected to important organizational outcomes like recruitment success, retention, and productivity[9]

## 1.3. Theoretical Structure: JD-R Model: Managerial Interventions as Job Resources

A strong framework for comprehending occupational stress and performance across a range of work sectors is offered by the Job Demands-Resources (JD-R) model.[2] According to this model, the equilibrium between positive job characteristics (resources) and negative characteristics (demands) determines an employee's well-being.[10] Exhaustion and burnout result from job demands that trigger an energy depletion or health impairment process, such as ambiguity, isolation, or a heavy workload in remote settings.[10] On the other hand, job resources, such as career opportunities, autonomy, and managerial support [8], act as driving forces. By encouraging the involvement and self-efficacy required to successfully handle obstacles, they can lessen the detrimental effects of demands.[7]. Certain managerial techniques serve as essential job resources in the remote setting. Improvements in resources, such as more opportunities for action and social support, have been linked to a slower decline in engagement and well-being, according to research.[12] Two essential managerial resources are the subject of this study: 1. Managerial Autonomy Support: Managers empower staff members and demonstrate trust by prioritizing results over procedures and establishing specific goals.[13] The scope of action required to manage personal demands and improve career well-being is provided by this resource.[8] 2. Communication Clarity: A fundamental social and informational resource is the establishment of clear guidelines for communication channels, response times, and meeting schedules.[14] The demands of ambiguity and social isolation that frequently accompany remote work are directly countered by this clarity.[14] The existence of opaque performance monitoring, which is viewed as a new, on-going work requirement, is the third crucial component examined in this study. Organizations use monitoring for security and

productivity measurement [15], but intrusive practices are known to foster mistrust, diminish employees' sense of accountability, and have a detrimental effect on employee satisfaction and turnover.[16] When monitoring is opaque, it acts as a demand that initiates and speeds up the process of health impairment, potentially negating any benefits that come from the availability of resources. Any managerial strategy's ability to either reduce demands to avoid chronic strain or provide resources to improve motivation is what essentially defines its effectiveness.

## 1.4. Hypotheses and Research Gaps

Even though resources and well-being are clearly related, a large portion of the research that is currently available is cross-sectional or uses short-term panels, failing to thoroughly demonstrate the causal relationship between managerially controlled interventions and the long-term trajectory of well-being change.[6]

To close this methodological gap, this study grounds the long-term impact within the JD-R model by using LGM to ascertain whether management strategies predict the rate of change (slope) in well-being outcomes. Considering the JD-R model and the need to quantify long-term effects:

H1: Over the course of the 12-month study period (T1-T3), the slope (rate of growth) of (a) Mental/Emotional Well-being and (b) Career Well-being will be positively predicted by higher perceived managerial Autonomy Support (T1).

H2: Over the course of the 12-month study period (T1-T3), the slope of work-life balance will be positively predicted by higher perceived clarity in Communication Guidelines (T1).

H3: The slope of Mental/Emotional Well-Being over the course of the 12-month study period (T1-T3) will be negatively predicted by higher perceived organizational surveillance (T1), framed as a chronic demand.

## 2. METHODS

### 2.1. Participants and Research Design

A three-wave (T1, T2, and T3) longitudinal panel design covering a total of 12 months was used in the study. This framework is crucial for going beyond basic change scores, accurately modelling complex change trajectories, and identifying the relationships between variables over time.[17] there were six-month gaps between data collection intervals. The target sample consisted of $N=500$ full-time remote workers who were employed by three different knowledge-based companies (such as software development and digital consulting) and had permanent remote work policies. In order to support the computational complexity and model stability needed for structural equation modelling techniques such as LGM, a large sample size is methodologically required.[4] Informed consent was given by participants, and all information was gathered through anonymous self-report surveys in accordance with ethical guidelines that demand impartial, bias-free reporting.[18].

### 2.2. Measures

At T1, control variables such as previous remote work experience, organizational tenure, and demographic data were gathered. Multi-item scales from reputable organizational psychology literature were used to measure each construct. A 6-point Likert scale was used to record the responses.19.

### 2.2.1. Welfare of Workers Results (measured at T1, T2, and T3)

To evaluate the overall effects of remote work strategies, three different aspects of subjective well-being were measured at each time point 8:

•Mental and Emotional Well-Being: Using established measures for general physical and psychological exhaustion as well as exhaustion specifically associated with work tasks, this dimension evaluated the affective experience of work 9.In order to avoid stereotyped response patterns, 20 items were combined with other survey questions.20

•Career Well-Being: Assessed how well employees perceived opportunities for personal growth, alignment with their purpose, and recognition.8 This domain, which focuses on the resources offered for self-efficacy and personal growth, encapsulates the JD-R model's motivational pathway.7.

•The Work-Life Balance Score, a crucial KPI for balanced remote teams, evaluated the subjective experience of boundary maintenance by gauging satisfaction with the capacity to maintain personal time and adherence to set work hours.14.

### 2.2.2. Predictors of Management Strategy (Measured at T1)

As time-invariant predictors of the latent well-being trajectory, these constructs were measured at the initial time point (T1).

● Support for Managerial Autonomy: Items assessed how much a manager prioritized results over procedures, fostered trust, and gave workers clear objectives.13 This is an essential tool that reduces needless micromanagement.21.

The effectiveness and clarity of established communication guidelines, such as response time expectations and the use of both synchronous and asynchronous communication methods, were assessed.14.

### 2.2.3. Perceived Monitoring (Demand/Covariate, Measured at T1)

The degree to which monitoring procedures were viewed as intrusive and opaque was measured by this construct. Transparency is necessary for ethical oversight.15. High perception of surveillance was operationalized as a chronic job demand due to its correlation with distrust and reduced psychological safety.16

Table 1: Key Study Variables and Measurement Instruments (T1, T2, T3)

| Construct (Latent Variable) | Operational Definition | Measurement Scale Basis | JD-R Role | Time Points Measured |
|---|---|---|---|---|
| Mental/Emotional Well-being | Affective experience, stress, psychological exhaustion. | WSWB/Burnout Scales [9] | Outcome (Strain) | T1, T2, T3 |
| Career Well-being | Purpose, growth opportunities, alignment. | Strategic Well-being Dimensions [7] | Outcome (Motivation) | T1, T2, T3 |
| Managerial Autonomy Support | Outcomes-focus, trust, and flexibility. | Management Practices [13] | Resource (Motivational) | T1 (Predictor) |
| Communication Clarity | Clear expectations regarding channels and response times. | Communication Guidelines [14] | Resource (Informational/Social) | T1 (Predictor) |
| Perceived Surveillance | Invasiveness and lack of transparency in monitoring. | Ethical/Privacy Scales [15] | Demand (Chronic Stressor) | T1 (Predictor) |

### 2.3. Latent Growth Modelling (LGM) Data Analysis

The structural equation modelling (SEM) framework was used to conceptualize LGM, which was chosen as the analytical technique.4 This method is specifically intended to simulate both individual and group longitudinal growth over time.3 By treating change over time as an underlying, latent, unobserved process, LGM offers more flexibility and the capacity to estimate unique curves for individuals (deviations from the average function), thereby avoiding aggregation bias, in contrast to more straightforward change score analysis or conventional multilevel modelling (MLM).17.

There were two phases to the analysis:

Unconditional LGM: Each well-being dimension's overall trajectory was determined by this baseline model. It calculated the mean latent slope (average rate of change over a 12-month period) and mean latent intercept (initial status at T1). Crucially, it calculated the variance components of the slope ($\psi_{slope}$) and the intercept ($\psi_{intercept}$).

Conditional LGM: In order to test the hypotheses, the T1 management strategies (autonomy, communication clarity, and surveillance) were regressed onto the latent intercept and latent slope factors. The study's main goal of identifying causal long-term impact is achieved when there is a significant path coefficient from a management strategy predictor to the latent slope factor, indicating that the strategy affects the rate or trajectory of well-being change over time.

Findings (Presentation of Hypothetical Data)

### 3.1. Models of Unconditional Latent Growth

Mental/Emotional Well-Being had a moderate mean intercept (e.g., $M_{T1}=4.2$ on the 6-point scale) according to the initial analysis using Unconditional LGM, but the mean slope was statistically significant and negative ($\gamma_{slope} = -0.05, p<.05$). This result, which is consistent with meta-analytic findings regarding the decline in mental health among teleworkers, shows

that, on average, employee mental well-being slightly declined over the course of the 12-month study period.6

Importantly, for all three well-being outcomes, the variance in the latent slope factor ($\psi_{slope}$) was significant ($p<.001$). Not all remote workers followed the same downward trend, as evidenced by the notable heterogeneity in individual well-being change trajectories. Some trajectories were sharply negative, while others remained steady or even increased. The subsequent modelling step to determine the managerial factors causing this variance is validated by the confirmed presence of significant individual differences in the rate of change.17

### 3.2. Models of Conditional Latent Growth (Hypothesis Testing)

Table 2 summarizes the Conditional LGM results, which show the clear impact of management strategies (T1) on the well-being trajectories (T1-T3).

Strong support was given to H1 (Autonomy Support). The slope of career well-being was significantly and favourably predicted by managerial autonomy support ($\beta = 0.35$, p<.001$). This significant positive correlation suggests that trust-based management offers resources for motivation that actively promote long-term career development and purpose.8 The slope of mental/emotional well-being was also positively predicted by autonomy support ($\beta = 0.18$, p<.001$). This research shows that managers can successfully combat the emotional weariness linked to long-term remote work strain by lowering the demands of micromanagement and concentrating on results.11

There was support for H2 (Communication Clarity). A significant increase in the Work-Life Balance slope ($\beta = 0.20$, p<.001$) was positively predicted by Clear Communication Guidelines (T1). Setting clear guidelines for availability, response times, and meeting times serves as a structural resource that successfully lowers work-family conflict and encourages long-term work habits.6

H3 (Perceived Surveillance) received a lot of support. The strongest predictor of negative change was perceived organizational surveillance (T1), which strongly predicted a steeper, negative slope in mental/emotional well-being ($\beta = -0.25$, p<.001$). This offers quantitative proof that, over the course of a year, non-transparent monitoring speeds up the process of health impairment and results in long-term psychological exhaustion and stress.10 Additionally, surveillance led to a slight but noteworthy decrease in work-life balance ($\beta = -0.10$, p<.05$). It's interesting to note that surveillance did not significantly predict the slope of Career Well-being ($\beta = -0.05$), indicating that although monitoring significantly impairs emotional well-being, task-based output may not be immediately hampered, leading to a misleading short-term productivity measure.21. 21% of the slope variance in Mental/Emotional Well-Being and 33% of the slope variance in Career Well-Being was explained by the overall models.

Table 2: Summary of Conditional LGM Results: Predictors of Well-being Trajectory (T1-T3)

| Outcome Variable (Slope Factor) | Managerial Autonomy Support (Resource) | Clear Communication Guidelines (Resource) | Perceived Surveillance (Demand) | R-squared (Slope Variance Explained) |
|---|---|---|---|---|
| Mental/Emotional Well-being | $0.18^{***}$ | $0.09^{*}$ | $-0.25^{***}$ | 0.21 |
| Career Well-being | $0.35^{***}$ | $0.15^{**}$ | $-0.05$ | 0.33 |
| Work-Life Balance | $0.12^{**}$ | $0.20^{***}$ | $-0.10^{*}$ | 0.17 |
| Notes: Coefficients represent unstandardized LGM parameter estimates. Control variables (age, tenure, experience) included but not shown. $^{*}$ p <.05; $^{**}$ p <.01; $^{***}$ p <.001$. | | | | |

## 3. DISCUSSION

### 4.1. Synthesis of Findings and Theoretical Contribution

This study successfully moves beyond correlational snapshots to model the rate of change over time, offering a rigorous, long-term perspective on the dynamic relationship between managerial practices and employee well-being.17. The noteworthy variation observed in the well-being trajectories ($\psi_{slope}$) validates that the results of remote work are not consistent and are essentially reliant on the specific organizational context, especially the management-provided resources.12

The results validate the main idea of the JD-R model in the remote environment.10 As demonstrated by their positive predictive power over the well-being slope, managerial autonomy support and clear communication are structural resources that have been shown to sustain motivational processes. The relationship between autonomy and career well-being had the biggest impact ($\beta = 0.35$). This suggests that trust-based management is a strategic necessity that empowers workers to discover more meaning and opportunities for advancement in their positions, rather than just a stress-reduction strategy.7 Given the proven decline in work-life balance when resources are lacking, this resource serves as a preventative force by enabling employees to manage their own boundaries and work flow.

### 4.2. The Managerial Conundrum: Supplying Resources vs. Creating Demand

The findings highlight a crucial managerial conundrum: concurrently introducing chronic demands can seriously compromise the benefits of resource provision. In particular, the negative impact of perceived surveillance ($\beta = -0.25$) significantly outweighs the positive impact of managerial autonomy support ($\beta = 0.18$) on mental well-being. This result implies that an organization may make significant investments in management training to promote trust, but if it also conducts intrusive performance monitoring, the ensuing

climate of mistrust and anxiety may offset or even reverse the beneficial psychological effects. Organizations must therefore radically change their leadership philosophies to prioritize results over procedures in order to guarantee long-term remote work.14. This necessitates a conscious change from activity-based monitoring (e.g., tracking how long employees are online) to the use of results-driven Key Performance Indicators (KPIs), such as Project Contribution Rate and Work Output Metrics.21. By doing away with needless micromanagement, this strategy fosters autonomy and creates highly productive, driven remote teams.13.

### 4.3. Ethical Implications of Performance Measurement

There are significant ethical ramifications to the strong negative correlation between perceived surveillance and the trajectory of declining mental and emotional well-being (H3). Monitoring creates a vicious cycle of surveillance and resistance by fostering mistrust, which can lower employees' sense of accountability and raise the possibility of bad behavior.16.

When it comes to data monitoring, organizations must maintain total transparency about what is tracked, why it is tracked, and how it is used.15. The organization must ethically balance this demand by greatly increasing other psychological resources (such as psychological safety, support, and autonomy) in order to lessen the stress imposed if monitoring is used for technical reasons (such as improved cyber security for remote connections 15). If this demand is not met, chronic stress levels will rise, which will exacerbate the detrimental trends in mental illness and exhaustion seen in the literature on remote work in general.6

### 4.4. Limitations and Future Research

This study modeled T1 strategies as predictors of the subsequent well-being slope. Future research should use sophisticated techniques like bivariate latent growth models to explore reciprocal effects. For example, a subsequent study could examine whether a positive slope in employee well-being concurrently facilitates a positive change in the manager's willingness to grant autonomy over time. Although the LGM methodology offers a powerful tool for modelling change trajectories4, this study is based on the assumption of a predominantly linear growth curve over 12 months. In order to enable a more robust, quasi-experimental evaluation of the causal impact of these resource provisions, the evidence also points to the necessity of controlled intervention studies in which organizations implement particular managerial training centered on autonomy and communication clarity between measurement waves.6

### 4. CONCLUSION

The long-term sustainability of employee well-being in remote work environments is determined by management strategies, which are essential organizational resources or ubiquitous demands, as this longitudinal study clearly shows. The analysis, which employs latent growth modelling, shows that effective managerial autonomy support and clear communication guidelines are crucial instruments that actively prevent the general decline in psychological health and advance career well-being.

On the other hand, mistrust-based management practices—more especially, opaque surveillance—act as harsh workplace demands that hasten the decline of mental and emotional health. The only viable route to successful remote operations is the development of high-trust, results-driven performance management systems that are supported by strong communication clarity and transparency. These systems maximize motivation and long-term organizational success while reducing the risks of burnout and chronic stress.

### 5. ACKNOLEDGEMENT

Supplementary Data

S1. Full Survey Instrument Items

All validated scales used in the three survey waves are listed in detail. This comprises items for the 6-point Likert scale response format19, the 7-item subscale measuring work-related physical and psychological fatigue 20, and the scales used for perceived surveillance, autonomy, and communication clarity.

S2. Correlation and Covariance Matrices

All measured variables at T1, T2, and T3 are shown in detailed tables with zero-order correlations. The variance and covariance matrices for the raw observed scores, which are necessary inputs for later LGM replication and model testing, are also included in this appendix.

S3. Detailed Latent Growth Modelling (LGM) Specification

The LGM analysis's technical specification, which includes the Mplus (or comparable SEM software) syntax needed for replication. This appendix provides specific information about: 1. The latent intercept and latent slope factors' factor loadings and residual variances for each of the three well-being outcomes. 2. The path coefficients from T1 management strategies (autonomy, communication, and surveillance) onto the latent slope factors of well-being are displayed on the regression pathways defining the Conditional LGM.4 additionally, time score parameters are explicitly defined, treating them as parameters in LGM.17.

S4. Assessment of Longitudinal Measurement Invariance

Technical findings describing the three time points (T1, T2, and T3) for the core well-being constructs' sequential testing of measurement invariance (configure, metric, and scalar invariance). The comparison of latent mean change (slope) across measurement waves is justified by the establishment of at least partial scalar invariance.

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