Does work time reduction improve workers' well-being? Evidence from global four-day workweek trials

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Abstract

Time spent on the job is a fundamental aspect of working conditions that influences many aspects of individuals' lives. In this ground-breaking research, we study how an organisation-wide four-day workweek intervention—with no reduction in pay—affects workers' well-being. Participating organisations undergo pre-trial work reorganisation to improve efficiency and collaboration, followed by a six-month four-day workweek trial. Based on data collected from 2,134 employees in 123 organisations before and after the trial, we find that the trial leads to improvements in multiple measures of subjective well-being, including burnout, job satisfaction, positive affect, mental health, and physical health. Larger reductions in individuals' weekly hours predict greater gains in well-being outcomes. Mediation analysis indicates that three factors significantly contribute to the relationship between reduced working hours and increased well-being: improvements in self-reported work ability, reductions in sleep problems, and decreased levels of fatigue.

The COVID-19 pandemic brought profound changes to labour markets around the world, including heightened rates of stress and burnout among employees[1,2], the lowest levels of worker engagement seen in more than a decade[2], and in some countries, high levels of job quits and unfilled positions[3–5]. According to Gallup's 2023 State of the World Report[2], employee stress reached a record-high level since the pandemic onset, with 44% of employees reporting experiencing stress "a lot of the day yesterday," compared with 31%-39% before the pandemic. Globally, more than half of the respondents indicated that they are looking for or actively seeking a new job, and 59% are engaged in "quiet quitting," a state of not being fully engaged and putting in the minimum effort required[2]. The percentage of employers reporting skilled labour shortages increased from 54% in 2019 to 69% in 2021 and further to 77% in 2023[3].

In addition to fostering a new understanding of employees' challenges in managing the work/family/personal life interface, the pandemic spawned a re-imagination about where, when, and how work can be accomplished. Alongside the massive shift to remote work for those whose jobs allow it[6,7], one innovative response has been to offer employees an additional day off with no reduction in pay, in order to lower stress, improve morale and reduce attrition.

In this article, we present results from the first large-scale, cross-national trials of four-day workweeks with no reductions in pay. This ground-breaking research recruits large numbers of companies from around the world over a period of years. The trials began in early 2022 and have involved more than 211 companies and 7,200 employees across Canada and the United States, Continental Europe, Ireland and the United Kingdom, Australasia, and South Africa. In addition to investigating changes in well-being with the shift to a four-day workweek, we move beyond the "black box" of work time reduction (WTR) impacts and contribute to existing studies by illuminating the pathways through which WTR affects worker outcomes. Evaluating changes in a range of well-being outcomes—burnout, job satisfaction, positive affect, mental health, and physical health—from before to after a six-month trial period, we address three research questions. First, how has workers' subjective well-being changed over the trial period? Second, do greater work-hour reductions predict larger improvements in workers' well-being? Third, to the extent that reduced hours promote well-being, what mediators explain the relationship? We examine the

roles of perceptual and behavioural changes within and outside the workplace as potential mediating factors.

Our research—and the four-day workweek trials—are rooted in decades of social science and public health research demonstrating workplaces as a fundamental "social determinant of health"[8–21]. One influential model is the job demands-resources (JD-R) model[8,22,23], building on the pioneering job demands-control model of Karasek[14]. The "job demands" component in JD-R includes all aspects requiring sustained physical, cognitive, or emotional effort, whereas the "job resources" component includes a broad array of resources with motivating potential, such as autonomy over tasks. A key component of job demands is the length of working hours. Long hours can activate a health impairment process whereby increased effort depletes employees' physical, emotional, and cognitive resources, leading to heightened job strain, exhaustion, and distress[8]. Conversely, reducing hours through organisational change can be viewed as a type of job resource that, in turn, fosters employee well-being. The prediction based on the JD-R model also aligns with time availability and a work recovery point of view. Given that time is a fixed constraint, longer work hours reduce available recovery time from the demands and pressures of the job[21].

The existing occupational stress literature addresses the impact of long working hours on employees' physical and psychological well-being. Observational studies use population health data to examine the relationship between hours worked and well-being, consistently finding that long working hours are associated with poor health outcomes such as the prevalence of heart disease and stroke[24,25], cancer[26], chronic pain[27], and psychological distress[28,29]. Research on behavioural factors finds that individuals working long hours are less likely to engage in regular exercise[30,31], tend to consume fast food more frequently[30], and have fewer hours of sleep, along with lower mental health due to challenges in managing the work-life interface[28]. There are also a small number of studies that analyse the impact of government-legislated, country-wide work time reductions, which show positive impacts on health for the cases of Portugal and France[32,33] and on life satisfaction for Japan and Korea[34].

This line of research provides valuable insights into work hours as a risk factor for well-being. However, with a few exceptions, it relies on cross-sectional data, comparing those who work long

hours with those who work shorter hours, making it difficult to assess the directionality between hours worked and well-being. Even when panel data are used, the fact that working hours tend to remain stable implies that the changes in work hours are typically of small magnitude if they occur. These changes can also be attributed to other factors, such as sickness, potentially confounding the well-being implications of hours. The close link between hours worked and pay further complicates the relationship, prompting the question of whether effects are due to changes in hours or changes in incomes. Moving beyond these studies, this research directly addresses the important question of whether an organisation-wide, collective change in work hours with no reductions in pay promotes well-being.

A second line of research relies on intervention data to provide evidence on the effects of work-related characteristics on well-being [see 35,36 for reviews on workplace interventions]. These studies have looked at a range of policies, although the majority have studied individual accommodations, such as wellness programs. Disappointing results with interventions aimed at individuals have led researchers to focus on organisation-wide experiments. These interventions have rarely explicitly targeted work hours, however, some interventions may have indirect impacts on working hours. A major research effort at a Fortune 500 U.S. IT company found hours fell for some employees as a by-product of an experiment that gave them control over their temporal and spatial work activities and promoted supervisor support for family and personal lives[15]. This group-randomised trial led to positive changes in a wide range of well-being outcomes[15,37,38], suggesting that organisational change leading to working hour reductions can benefit workers' subjective well-being.

Focusing on workplace interventions that involve work time reduction (WTR), research has found that reduced work hours are associated with gains across a range of well-being outcomes[39–45], such as sleep quality and stress reduction[39], mental health[41], and quality of life[43]. A 2005 randomised study in 33 Swedish workplaces analysed an income-preserving 25% WTR and found improvements in stress, sleep duration, and sleep quality[44]. In a large-scale WTR trial in Iceland from 2015 to 2019 involving 2,500 government employees, participants reported less stress and work-family conflict, more energy, and higher well-being at work compared to those in control sites who did not show these improvements[40]. A recent qualitative study of a U.S. manufacturing firm found an increased sense of agency among office and shop workers after introducing a four-

day workweek[42]. These studies provide rare experimental evidence of the well-being benefits of reducing work time. However, they have mainly been limited to public sector employees in Northern Europe or employees in a single company, which limits the generalizability of the results[46]. In addition, the Northern European interventions often involve shorter days rather than a full day off work, the present study's focus.

We study how a workplace intervention that reduces the workweek from five to four days without corresponding reductions in pay affects workers' well-being. After successfully adopting a four-day week with no reduction in pay or productivity in their company, New Zealand-based entrepreneur Andrew Barnes and his wife Charlotte Lockhart founded the NGO 4 Day Week Global (4DWG). In 2021, 4DWG began recruiting companies for four-day week trials via word-of-mouth and online information sessions. The first trial, involving 12 Irish companies and 4 companies in the United States, New Zealand, and Australia, began on February 1, 2022. Additional 2022 trials were launched on April 1 (the United States and Canada), June 6 (the United Kingdom), August 1 (Australasia), and October 1 (the United States and Canada). In addition to the cohort-specific geographic focus, a few companies from other countries have also participated (see Table 1 for the five trial cohorts used in our analyses). Participation in the first two trials was free. Subsequently, 4DWG asked for a small donation and eventually a nominal fee.[1]

[Table 1 about here]

These trials are based on a 100-80-100™ model in which companies allow employees to work 80% of their regularly scheduled time in return for 100% of their pay. Sometimes, employees sign an explicit pledge to deliver 100% of their baseline output. The model is implemented through a "work reorganisation" process in which low- and zero-productivity activities, such as unnecessary meetings, are reduced. For approximately eight weeks before starting a trial, 4DWG offers webinars to help companies design their work reorganisation process. The support includes presentations, peer mentoring, individual help, and communications technology for participating organisations. Companies are encouraged to focus on organisational rather than individual productivity and to adopt a bottom-up approach which empowers employees to find time savings. Companies are not required to implement a four-day schedule. However, they must keep pay

[1] The UK trial was conducted in partnership with the UK Four Day Week Campaign and Autonomy, a think tank.

constant and offer a "meaningful" work time reduction, with the smallest allowable reduction set at four hours per week. Four out of five (82%) companies did give one full day off.

Below, we propose hypotheses on the relationship between changes in work hours induced through an organisation-wide four-day workweek intervention and changes in individual well-being outcomes, as well as whether this relationship can be accounted for by perceptual and behavioural changes within and outside the workplace. Based on the job demand-resources model[8,22,23] which theorises a health impairment process as a result of high job demands such as long work hours, as well as existing observational and interventional evidence showing that long working hours deteriorate well-being [12,27–29,39–45,47,48], we expect that the four-day week trials will lead to an improvement in employee well-being from baseline to trial endpoint. In addition, we expect larger reductions in working hours to be associated with greater improvements in well-being. As shown below, there is sufficient variability in changes in individual hours across trial organisations and employees to test this hypothesis.

Hypothesis 1: Employee well-being outcomes will improve between the pre-trial baseline measurement and the trial endpoint six months later.

Hypothesis 2: The greater the reduction in working hours, the larger the improvements in employee well-being over the six-month trial period.

We also examine possible mediators between work time reductions and changes in subjective well-being to shed light on the underlying mechanisms. We anticipate that a reduction in work hours will affect workers' experiences within the workplace and, given the context-free nature of time, also have crossover effects on their lives outside of work. For within-workplace changes, we anticipate that the work reorganisation process will improve employees' self-reports of efficiency and productivity and their sense of how they perform as employees, which subsequently contributes to their well-being[49]. Work reorganisation is related to the concept of job crafting, namely, the extent to which employees optimise their practices, such as simplifying work processes, working more efficiently, and limiting unproductive work to meet evolving job demands[49–51]. Extending prior research that examines individually-initiated job crafting, we

investigate whether job crafting resulting from an organisation-wide transformation in work time matters. We expect corresponding changes in perceived productivity and productivity practices to account for part of the association between reduced hours and improved well-being.

Guided by Karasek's job demands-control model[14] and the subsequent job demand-control-support model[52], we also examine job demands, job control, and job support as possible mediators. If the work reorganisation process successfully reduces intensity through improved productivity, a reduction in perceived job demands may mediate the effect of reduced hours. Conversely, if companies are not successful in finding more efficient ways of operating, employees will face higher daily job demands and will be required to increase their pace of work, leading to even greater stress. We assess these alternative scenarios regarding perceived job demands using data from the trials. For job control, we examine how employees experience control over their work schedules and how they perform their jobs in general. We anticipate an increase in such control following a shift to a four-day workweek, given that the work reorganisation process is intended to empower workers with greater autonomy in their work processes. In light of clear evidence highlighting schedule control and job autonomy as key determinants of well-being[14,15,53,54], job control should mediate the relationship between changes in hours and well-being. Job support is another dimension of work likely affected by the four-day workweek trial. Employees may feel more connected to each other by undergoing a collective change together[15,53]. An increased sense of relatedness could predict positive experiences at work and better well-being[52,55], making it a mediator between work-hour reductions and improved well-being.

Outside the workplace, from a time availability perspective, we anticipate that additional time off the job will lead to more available time for self-care. Employees may use the temporal gains to exercise more, experience higher-quality sleep, and consequently perceive less fatigue[39]. Given the well-established well-being benefits of exercise and sleep[56,57], these changes will mediate the relationship between reduced working hours and improved well-being.

Hypothesis 3: Greater reductions in working hours will raise self-reported productivity and other job resources within the workplace and encourage healthy behavioural changes outside the workplace.

Hypothesis 4: The relationship between work time reductions and changes in well-being will be mediated by changes in self-reported productivity and other job resources, as well as behaviour changes outside of work.

Results

Analyses. To test Hypothesis 1, we present descriptive statistics on changes in subjective well-being—burnout, job satisfaction, positive affect, mental health, and physical health—from before the four-day workweek trials to the end of the trials six months later. A paired *t*-test is used to examine whether the changes in well-being over the six months are statistically significant. Next, to test Hypothesis 2, we use mixed-effects linear regression models to investigate whether and to what extent changes in work hours are associated with changes in well-being over the six-month trial period. Mixed-effects regression models are used to adjust for the hierarchical structure of the data with employees nested within organisations. For each well-being outcome, we include changes in hours and a comprehensive set of covariates, including the lagged dependent variable (i.e., well-being measured at baseline). Similar models are run for the theorised mediators to test Hypothesis 3. For Hypothesis 4, we conduct mediation analyses. We first examine how adding mediators into the mixed-effects regression models alters the coefficients for changes in hours worked. We then conduct a formal mediation analysis using the Karlson-Holm-Breen (KHB) method[58], which allows us to decompose the total (crude) effects associated with a given relationship—in our case, changes in hours and changes in well-being—into direct effects and indirect effects that are mediated by other variables. Lastly, we report results from several robustness tests to ensure the reliability of our findings.

Changes in work hours and well-being over the trial periods. Table 2 presents the means of work hours and the five well-being outcomes at baseline, endpoint and the change from baseline to endpoint. There is an almost 5-hour reduction in work hours, from 39.12 at baseline to 34.48 six months later (change = -4.64, $p < .001$). Fig. 1 shows the distribution of work hours at baseline and endpoint. Throughout the trial, there is a clear shift in hours toward the left end of the distribution, with the mode of hours reduced from 40 to 32 hours. Also noteworthy is the wide variability in hours worked at both time points. In the following analyses, we leverage this

variability and disaggregate changes in hours into four groups—8 or more reduced hours (30.8%), 5-7 reduced hours (24.6%), 1-4 reduced hours (20.3%), and no change or increased hours (reference group, 24.3%).

[Table 2 about here]

[Fig. 1 about here]

In line with Hypothesis 1, Table 2 demonstrates significant improvements in all five well-being outcomes from the beginning to the end of the trial. Burnout reduced from 2.77 to 2.35 on a 1-5 scale (change = -0.42, $p < .001$), job satisfaction increased from 7.16 to 7.61 on a 0-10 scale (change = 0.45, $p < .001$), positive affect improved from 3.14 to 3.57 (change = 0.43, $p < .001$), and mental and physical health increased, respectively, from 2.94 to 3.30 (change = 0.35, $p < .001$) and from 3.01 to 3.29 (change = 0.27, $p < .001$). These results support our argument that reducing work hours through an organisation-level trial benefits workers' well-being.

Changes in work hours predict changes in well-being. Table 3 presents results based on mixed-effects linear regression models. After adjusting for a comprehensive set of individual and organisational-level covariates, Model 1 demonstrates a clear dose-response relationship, wherein greater reductions in hours worked consistently predict larger improvements in subjective well-being. For example, compared with employees whose hours either remain stable or increase over the trial period, those whose hours reduce by 8 hours or more experience a significantly larger reduction in burnout (-0.294, $p < .001$), followed by those with an hour reduction between 5 and 7 hours (-0.218, $p < .001$) and between 1 and 4 hours (-0.131, $p < .01$). Similar patterns are observed for other outcomes, with the largest well-being benefits accruing to those whose hours reduce the most (8 hours or more). This finding is important, indicating that even among this group of workers who can reduce hours without a pay reduction through an employer-initiated organisational change, a greater reduction in hours consistently predicts further improvements in well-being. Hypothesis 2 is therefore supported.

Descriptive statistics for the control variables are provided in Supplementary Table 1, and estimates for these variables in the models are presented in Supplementary Table 2. As

Supplementary Table 2 demonstrates, few control variables have consistently significant relationships with well-being, reinforcing our confidence that it is unlikely that a major confounding variable is driving the relationships between reduced work hours and changes in the well-being outcomes. We also tested for interaction effects between hours reductions and characteristics such as race, gender, college attainment, supervisor status, remote work status, and regional location (Supplementary Table 3). While few interaction terms are statistically significant, the significant results suggest that supervisors and workers living in the United States or Canada appear to gain greater well-being benefits from reduced work hours.

The mediating roles of work experiences and health behaviours. To test our mediation model, we first examine whether changes in work hours predict the set of mediators over the trial period. Table 4 indicates this is the case for most but not all mediators. Specifically, greater reductions in hours worked are associated with larger increases in perceived work ability and greater reductions in work intensity, sleep problems, and fatigue. In addition, reducing work hours by 8 hours or more (but not by other amounts) is associated with significant increases in work autonomy, exercise frequency, and high levels of smart working (which is only measured at the endpoint). Schedule control, by comparison, is not related to changes in work hours. Taken as a whole, Hypothesis 3 is largely supported.

[Table 4 about here]

Once we include the mediators in the models predicting well-being, Model 2 in Table 3 shows that the coefficients for changes in work hours are reduced to a great extent, with some losing the statistical significance altogether. To better illustrate the pattern, Fig. 2 presents the average marginal effects of reductions in hours (relative to stable or increased hours) for changes in well-being. Adding the mediators shrinks the magnitudes of the effects across the board and renders some non-significant (e.g., physical health), indicating that the mediators explain at least part of the associations between work hours and well-being.

[Fig. 2 about here]

A formal mediation test using the KHB method shows that the indirect effects via the mediators are mostly statistically significant, especially for the largest work hour reduction group (i.e., 8 hours or more), as indicated by the "Indirect effect" row in Table 5. Hypothesis 4 is therefore supported. We also use the KHB method to examine how much of the relationship between work-hour reductions and changes in well-being is mediated by each of the mediators. Results in the lower part of Table 5 show that three mediators play important roles in accounting for why work hours matter for well-being. These are improved work ability (accounting for 10.5% to 19.6%), reduced sleep problems (4.5% to 16.6%), and decreased fatigue (8.4% to 48.1%).

[Table 5 about here]

Robustness checks. We performed several checks on the robustness of our results, which are included in Supplementary Table 4. In all cases, our basic results remain substantively the same. Specifically, we tested for revisions in how we categorised changes in hours (Panel A). We also tested for period effects, which might have confounded the trial effects with the development and removal of COVID-19 precautions, by including the month the trial started (Panel B). We also included in Panel B a variable accounting for three companies that were not surveyed until a few weeks after their trials began. A final robustness check was to use endpoint values for our mediators rather than the change over the trial (Panel C). As can be seen, none of these modifications alter our main findings.

Discussion

This paper describes an innovative research project in which we follow a large number of companies that implement a four-day workweek trial over time and in different regions of the world. The focus on work time is critical, given the ubiquitous influence it holds on various aspects of individuals' lives[12]. The scale of this enterprise is unusual, as many previous worktime interventions involved a single company or were studies of public sector workplaces in Nordic countries. The organisation-wide character of the intervention is important, as individual accommodations to improve well-being have not demonstrated strong effectiveness[35]**.** Three major findings emerge from this study.

As predicted by Hypothesis 1 and Hypothesis 2, our study shows large improvements in a variety of well-being outcomes from before to following the trial. Moreover, the greater the reduction in hours, the more pronounced the positive well-being effects. This finding is consistent with predictions from the job demands-resources model, which anticipates that longer work hours activate a health impairment process, depleting workers' physical, emotional, and cognitive resources. Therefore, a reduction in the required time spent on the job is associated with well-being gains. Expanding upon prior intervention results from Nordic countries, our study reveals that the well-being benefits of reduced work time are not unique to that setting but have broader relevance for many workers across multiple regions.

Notably, the modal weekly hours in our sample are 40 before the trial, reduced to 32 after the trial. This suggests that the well-being benefits of work time reductions are not limited to workers with long hours, such as 50 and above—a focus of much previous research on work hours and well-being. Instead, it indicates that shorter hours can improve well-being even for standard work time. This finding also provides suggestive evidence that the actual hours of many workers do not align with their preferences[59,60]. Furthermore, it suggests the possibility that preferences are endogenous to actual hours; in other words, preferred schedules may adapt to actual schedules[61]. Our data supports a strong post-trial unwillingness to return to a five-day workweek. More than 95% of the respondents prefer a four-day workweek, and the median required salary increase to consider a future five-day workweek is 26-50%.

Consistent with Hypothesis 3, we demonstrate that reduced hours worked are associated with desirable changes in almost all of our theorised mediators. These include increased perceived work ability, work autonomy, and exercise frequency, along with reduced work intensity, sleep problems, and fatigue. These positive changes are largely expected, given that the work reorganisation process challenges the entire organisation and its members to improve efficiency and collaboration, potentially opening the door to a wide set of positive changes in how work is done. Given some prior research warning about the risk of job intensification related to flexible work arrangements[62], it is particularly reassuring that perceived job demands were reduced over the trial. The only factor unaltered by reductions in hours is schedule control. It is unclear why this is the case. This sample of primarily white-collar, professional workers likely had high levels of

schedule control even before the trial, leaving little room for further improvement. Future research based on interview data may shed further light on this finding.

Largely supporting Hypothesis 4, we observe significant mediation with three factors contributing most to the well-being effects of reduced working hours: perceived work ability, sleep problems, and fatigue. While sleep problems and fatigue have received much attention in previous studies on work hours and well-being, perceived work ability has not been adequately theorised in the literature, and its connection to work time reduction has not been previously shown. We found a substantial increase in perceived ability to work with the shift to a four-day workweek, which benefits well-being. This result represents an important addition to the job demands-resources model, highlighting that an organisation-wide reduction in job demands can stimulate workers to adjust and optimise their work processes (job crafting), leading to improved perceived work ability and well-being. Given the dual benefits of perceived productivity and well-being, removing constraints on work time is a promising avenue for the future of work.

Limitations and future directions

One limitation of our research design is that it lacks control groups, limiting our ability to make a strong causal claim. There are several reasons controls were not possible. The option of randomly assigning employees to the trial versus control conditions was not feasible for many of our companies, given their small size and the fact that this is an organisation-wide innovation. Moreover, the timing and nature of trial implementation were beyond the control of the research team, complicating the use of designs such as paired case-control studies. We hope that the extensive individual- and organisational-level covariates included in our models, the stability of our findings across temporal and geographic contexts, and the results of our robustness checks mitigate some concerns about the absence of a control group. We also view this as an opportunity for large-scale government-sponsored trials with financial incentives to implement a randomised study design.

A second issue is that companies self-select into the trial. This selection bias has more serious methodological implications for results on company performance than individual well-being outcomes because the choice to join a trial is made by senior management. As such, there should

be less selection bias with employee outcomes, which is the focus of this study. Another limitation is geographical spread; this sample includes only high-income Anglophone countries. Relatedly, it should be noted that the sample included a large number of small organisations, which tend to be more reliant on the resources provided by an NGO such as 4 Day Week Global. These limitations restrict our ability to generalise, but they also represent several opportunities for future research regarding geographic and sectoral spread and organisation type. Notably, 4DWG trials are expanding to non-English speaking and lower-income countries; future research is needed to understand the scope of the well-being benefits of four-day workweeks. Further qualitative research is also essential to closely examine the work reorganisation process, in order to understand the changes in perceived work ability following the trial and why it matters for worker well-being.

Despite its limitations, this study has important implications for understanding the future of work, with four-day workweeks likely being a component of it. Scientific advances from this work will inform the development of interventions promoting better organisation of paid work and worker well-being. This task has become more important with the rapid expansion of new digital, automation, and artificial general intelligence technologies.

Methods

Sample. The data used in the analysis come from employees who participated in four-day workweek trials. Before the trial begins, companies appoint a liaison to the research team, who provides us with a list of email addresses and sends an email alerting employees that a Qualtrics survey link will be coming and that they may fill out the survey during working hours. (Not all divisions were included in the trial in four larger companies, and only participating employees were surveyed.) Employees receive the link two weeks before the trial begins. At three months, they receive a second survey with a small subset of well-being measures and a time diary for their most recent off day. At six months, they receive an endpoint survey with all the baseline questions plus a short set of retrospective questions about the trial. Of those we sent the baseline survey, 80% completed it. Among the respondents who completed the baseline survey, 74% participated in the endpoint survey. A retention analysis indicates that whites, permanent employees, and those residing in the United States and Canada are likelier to participate in the endpoint survey. The retention rate, however, is not affected by age, gender, educational attainment, parental status,

elder care responsibilities, managerial status, work shifts, or remote work status. Our analytic sample consists of those who completed baseline and endpoint surveys with no missing data on the variables included in the models. The Institutional Review Board of the principal investigators' institution approved this research.

Dependent variables. We examine the impact of work time reduction on well-being outcomes, including burnout, job satisfaction, positive affect, self-rated mental health, and self-rated physical health. *Burnout* is constructed based on seven questions adapted from the Copenhagen Burnout Inventory[63]. Three sample items are "Do you feel worn out at the end of the working day?", "Does your work frustrate you?" and "Do you have enough energy for family and friends during leisure time?", with response options ranging from "never" to "always." The alpha value is 0.88 at both the baseline and endpoint waves, indicating high reliability. We measure *job satisfaction* by asking respondents to rate "how satisfied are you with your present job/work" on a scale of 0 to 10. *Positive affect* assesses the extent to which an individual experiences positive moods[64]. Participants indicated their level of agreement with five statements about their affective well-being over the last four weeks, where 1 was "strongly disagree" and 5 was "strongly agree." Sample statements include "I have felt cheerful and in good spirits" and "I woke up feeling fresh and rested." The alpha value for this scale is 0.83 at the baseline and 0.86 at the endpoint.

We have taken two questions from the European Union Statistics on Income and Living Conditions, asking respondents to evaluate their *mental and physical health*. They are: "Thinking about the last 4 weeks on a scale from 1 to 5, where 1 is 'poor' and 5 is 'excellent,' how would you rate your mental health?" and "Thinking about the last 4 weeks on a scale from 1 to 5, where 1 is 'poor' and 5 is 'excellent,' how would you rate your physical health?"

Independent variable. Our key independent variable is the *change in work hours*. At baseline, respondents are asked, "How many hours per week do you usually work in your job?" At the endpoint, the question is slightly modified to, "Over the last four weeks, how many hours per week did you usually work in your job?" The added time frame, "over the last four weeks," in the endpoint question aims to accurately capture respondents' work hours during the trial period. Respondents are instructed to exclude time spent on breaks and commuting to/from work. We subtract the reported work hours at baseline from the endpoint value and then group the changes

into four categories: 8 or more reduced hours, 5-7 reduced hours, 1-4 reduced hours, and no change or increased hours.

Mediating variables. Our first set of mediators includes changes in work-related characteristics. Building on job crafting[50,51] and the job demands-control-support model[52], we investigate the mediating roles of perceived productivity, productivity practices, perceived job demands, job control, and job support.

We use *work ability* to capture perceived productivity[65]. Specifically, we ask participants to rate their current work ability compared to their lifetime best on a scale of 0-10. We draw on a four-item result orientation scale developed by the Work, Family & Health Network[66] to assess productivity-related behaviours. Two sample items are "Thinking back on your last four weeks at work, how often do you find more efficient ways to do your work?" and "Thinking back on your last four weeks at work, how often do you work with your supervisor to make sure that your most important job responsibilities are clear?", rated on a scale from 1 = never to 5 = all of the time. Unlike other mediators, this *smart working* scale was not administered at the baseline survey for earlier cohorts. Therefore, we use this scale measured at the endpoint as a mediator.

Perceived job demands are assessed through a two-item *work intensity* scale from the European Working Conditions Survey. It represents workers' rating of the extent to which they had to work to tight deadlines and at very high speeds. For job control, we evaluate control over how and when the work is done. Specifically, *work autonomy* is measured through the work autonomy subscale from an amended version of the Basic Psychological Needs Scale-Revised (BPNS-R)[67], consisting of four items such as "I feel like I have a lot of input into deciding how my job gets done" (rated from 1 = strongly disagree to 5 = strongly agree). The alpha value for the scale is 0.77 at baseline and 0.79 at endpoint. We measure *schedule control* using a 4-item scale that assesses, on a 1-5 scale, employees' perception of control over the timing of their vacation, taking off a few hours, the number of hours worked per week, and when they begin and end each work day[68]. The alpha value for the scale is 0.72 at baseline and 0.75 at endpoint.

To measure job support, we use a *work-relatedness* subscale from an amended version of the Basic Psychological Needs Scale-Revised (BPNS-R)[67], consisting of four items such as "People at work

are pretty friendly towards me" (rated from 1 = strongly disagree to 5 = strongly agree). The alpha value for the scale is 0.72 at baseline and 0.75 at endpoint.

Our second set of mediators includes changes in sleep problems, levels of fatigue, and exercise frequency. Respondents are asked how often they experienced "insomnia or general sleep difficulties" and "overall fatigue" over the last four weeks, rated on a 1-4 scale from "never" to "daily." We also assess the frequency with which participants engage in physical activity every week (0, 1-2, 3-4, 5-6, and 7 or more).

Control Variables. For individual-level characteristics, we adjust for sociodemographic and socioeconomic measures, including gender (women, men, and others), age (18–34, 35–44, and 45 and above), race (white and non-white), college education, managerial status, parental status (no children at home, preschoolers at home, school-aged children at home), whether the individual is responsible for elder care, and country location (United States/Canada, United Kingdom/Ireland, Australia/New Zealand, and other). Four work-related characteristics are also included: whether they are a contract or permanent employee, whether they work shifts, whether they work remotely (fully remote, hybrid, and work at work), and whether their four-day week schedule gives them three consecutive days off. Given the close relationship between mental and physical health, we additionally control for respondents' self-rated physical health at baseline for all outcomes and self-rated mental health for the physical health outcome.

At the organisation level, we control for size (10 or fewer employees, and more than 10 employees), industrial classification (IT; professional services; civil, social, and other services; construction/manufacturing; and other), and whether the organisation is a for-profit or non-profit entity.

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Table 1. Cohorts of participating companies used in the analyses

	Duration	Main Countries	Number of companies	Number of Participants at Baseline
Cohort I	Feb 2022–July 2022	Ireland and United States	4	447
Cohort II	Apr 2022–Sept 2022	United States and Canada	17	297
Cohort III	Jun 2022–Nov 2022	United Kingdom	55	2,539
Cohort IV	Aug 2022–Jan 2023	Australia and New Zealand	24	719
Cohort V	Oct 2022–Mar 2023	United States and Canada	23	689

Table 2. Descriptive statistics of work hours and well-being

	Baseline	Endpoint	Change	
Work hours	39.12	34.48	-4.64	***
	(6.67)	(6.99)	(6.90)	
Burnout (1-5)	2.77	2.35	-0.42	***
	(0.79)	(0.73)	(0.75)	
Job satisfaction (0-10)	7.16	7.61	0.45	***
	(1.91)	(1.91)	(1.93)	
Positive affect (1-5)	3.14	3.57	0.43	***
	(0.80)	(0.79)	(0.88)	
Mental health (1-5)	2.94	3.30	0.35	***
	(0.99)	(1.00)	(0.99)	
Physical health (1-5)	3.01	3.29	0.27	***
	(0.97)	(0.94)	(0.91)	

Note: Standard deviations are in parentheses. Asterisks indicate statistical significance, calculated using paired-sample *t* tests. *** $p<.001$.

Table 3. Estimates from two-level mixed-effects regression models predicting changes in well-being

	Burnout		Job satisfaction		Positive affect		Mental health		Physical health	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Change in hours (reference: no change or increase)										
Reduced >=8 hours	-0.294***	-0.125***	0.545***	0.203*	0.277***	0.105**	0.318***	0.126**	0.166***	0.040
	(0.037)	(0.030)	(0.099)	(0.087)	(0.043)	(0.037)	(0.051)	(0.045)	(0.047)	(0.044)
Reduced 5-7 hours	-0.218***	-0.110***	0.425***	0.230*	0.162***	0.072+	0.163**	0.053	0.068	0.005
	(0.038)	(0.030)	(0.103)	(0.090)	(0.045)	(0.038)	(0.053)	(0.047)	(0.049)	(0.045)
Reduced 1-4 hours	-0.131**	-0.054+	0.241*	0.104	0.131**	0.051	0.140*	0.047	0.092+	0.035
	(0.040)	(0.032)	(0.109)	(0.094)	(0.048)	(0.040)	(0.056)	(0.049)	(0.051)	(0.048)
Current work ability		-0.083***		0.209***		0.078***		0.077***		0.042***
		(0.006)		(0.019)		(0.008)		(0.010)		(0.010)
Work smart (endpoint)		-0.088***		0.388***		0.167***		0.181***		0.114***
		(0.018)		(0.053)		(0.022)		(0.027)		(0.027)
Work intensity		0.118***		-0.121**		-0.051**		-0.061**		-0.012
		(0.013)		(0.039)		(0.017)		(0.020)		(0.020)
Work autonomy		-0.109***		0.477***		0.055*		0.064*		0.039
		(0.018)		(0.054)		(0.023)		(0.028)		(0.027)
Schedule control		-0.038*		0.138**		0.032+		0.039+		0.014
		(0.015)		(0.045)		(0.019)		(0.023)		(0.023)
Work relatedness		-0.045*		0.087		0.031		0.009		0.033
		(0.021)		(0.060)		(0.025)		(0.031)		(0.031)
Sleep problems		0.082***		-0.154***		-0.134***		-0.149***		-0.073***
		(0.013)		(0.037)		(0.016)		(0.019)		(0.019)
Fatigue		0.202***		-0.218***		-0.200***		-0.201***		-0.143***
		(0.013)		(0.039)		(0.016)		(0.020)		(0.020)
Exercise frequency		-0.021***		0.051**		0.063***		0.053***		0.084***
		(0.006)		(0.017)		(0.007)		(0.009)		(0.009)
Intercept	1.204***	1.331***	3.638***	1.254***	2.282***	1.063***	1.474***	0.407**	1.498***	0.771***
	(0.126)	(0.118)	(0.319)	(0.324)	(0.139)	(0.136)	(0.164)	(0.163)	(0.143)	(0.159)

Level-1 R^2	0.337	0.581	0.349	0.541	0.336	0.541	0.273	0.447	0.269	0.375
Variance components										
Level-1 (σ^2)	0.369	0.233	2.702	2.018	0.519	0.358	0.710	0.546	0.607	0.519
Intercept (τ_{00})	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000

Notes: N=2134 employees from 123 companies. The well-being outcomes and all mediators (except work smart) are change scores from baseline to endpoint. All models control for a wide range of individual- and organisation-level covariates and a lagged dependent variable. Results for the full models are shown in Supplementary Table 2. Standard errors are in parentheses.

Level-1 R^2 represents the proportionate reduction in the sum of two variance components that results from the inclusion of predictors in the model.

*** $p<.001$, ** $p<.01$, * $p<.05$, + $p<.1$

Table 4. Estimates from two-level mixed-effects regression models predicting changes in mediators

	Work ability	Work smart	Work intensity	Work autonomy	Schedule control	Work relatedness	Sleep problems	Fatigue	Exercise frequency
Change in hours (reference: no change or increase)									
Reduced >=8 hours	0.488***	0.099**	-0.183***	0.112*	0.064	0.067+	-0.233***	-0.345***	0.245*
	(0.105)	(0.036)	(0.048)	(0.044)	(0.042)	(0.039)	(0.056)	(0.055)	(0.108)
Reduced 5-7 hours	0.349**	0.034	-0.072	0.060	0.007	0.034	-0.120*	-0.235***	0.011
	(0.109)	(0.038)	(0.050)	(0.046)	(0.044)	(0.040)	(0.058)	(0.057)	(0.112)
Reduced 1-4 hours	0.247*	0.057	-0.135**	0.032	-0.037	-0.029	-0.151*	-0.100+	0.180
	(0.114)	(0.040)	(0.052)	(0.048)	(0.046)	(0.042)	(0.061)	(0.060)	(0.118)
Intercept	1.121***	3.419***	0.205	0.060	0.283*	0.212+	-0.643***	-0.654***	1.034**
	(0.326)	(0.114)	(0.157)	(0.132)	(0.134)	(0.116)	(0.171)	(0.164)	(0.323)
Level-1 R^2	0.034	0.027	0.016	0.018	0.027	0.018	0.039	0.058	0.055
Variance components									
Level-1 (σ^2)	1.070	1.055	1.032	1.036	1.054	1.036	1.080	1.123	1.116
Intercept (τ_{00})	0.022	0.003	0.014	0.000	0.005	0.000	0.003	0.000	0.000

Notes: N=2134 employees from 123 companies. All mediators (except work smart) are change scores from baseline to endpoint. All models control for a wide range of individual- and organisation-level covariates and a lagged dependent variable. Standard errors are in parentheses.

Level-1 R^2 represents the proportionate reduction in the sum of two variance components that results from the inclusion of predictors in the model.

*** $p<.001$, ** $p<.01$, * $p<.05$, + $p<.1$

Table 5 Estimates from KHB mediation analysis

	Burnout			Job satisfaction			Positive affect			Mental health			Physical health		
	>=8h	5-7h	1-4h	>=8h	5-7h	1-4h	>=8h	5-7h	1-4h	>=8h	5-7h	1-4h	>=8h	5-7h	1-4h
Total effect (before adding mediators)	-0.294***	-0.218***	-0.131***	0.545***	0.425***	0.241**	0.277***	0.162***	0.131***	0.318***	0.155***	0.135**	0.166***	0.068+	0.092*
Direct effect (after adding mediators)	-0.125***	-0.110***	-0.054*	0.203*	0.230*	0.104	0.105**	0.072+	0.051	0.126**	0.053	0.047	0.040	0.005	0.035
Indirect effect	-0.169***	-0.109**	-0.076+	0.342***	0.195*	0.137	0.172***	0.091*	0.079+	0.192***	0.102*	0.088*	0.126***	0.063*	0.058+
% of total effect due to individual mediators															
Work ability	12.4%	13.1%	14.7%	17.5%	16.7%	18.3%	11.9%	14.0%	12.8%	11.5%	16.1%	13.3%	11.8%	19.6%	10.5%
Work smart (endpoint)	2.9%	1.1%	3.7%	7.1%	2.4%	9.2%	6.5%	3.6%	7.4%	5.6%	3.4%	7.3%	6.7%	4.8%	6.7%
Work intensity	7.1%	3.7%	12.0%	4.0%	1.9%	6.6%	3.3%	2.0%	5.1%	3.5%	2.6%	6.0%	1.3%	1.1%	1.7%
Work autonomy	3.8%	3.2%	2.6%	9.3%	7.0%	5.1%	2.1%	1.8%	1.2%	2.3%	2.5%	1.5%	2.6%	3.4%	1.3%
Schedule control	0.7%	0.2%	-1.2%	1.5%	0.3%	-2.5%	0.6%	0.0%	-1.0%	0.8%	0.2%	-1.1%	0.5%	0.1%	-0.6%
Work relatedness	0.9%	0.8%	-1.0%	1.0%	0.7%	-1.2%	0.7%	0.6%	-0.7%	0.2%	0.2%	-0.2%	1.3%	1.6%	-1.0%
Sleep problems	6.0%	4.8%	9.4%	6.5%	4.5%	9.3%	9.9%	8.3%	14.5%	10.8%	11.0%	16.6%	10.2%	12.4%	12.0%
Fatigue	21.8%	22.8%	15.3%	13.5%	12.3%	8.4%	22.1%	25.7%	13.3%	21.6%	29.8%	15.0%	29.3%	48.1%	15.6%
Exercise frequency	1.7%	0.1%	2.9%	2.3%	0.2%	3.7%	5.0%	-0.2%	8.2%	4.1%	0.4%	7.1%	12.3%	1.3%	16.3%

Notes: N=2134 employees from 123 companies. Results were derived from OLS regression models using the "khb" routine in Stata, with standard errors clustered at the company level. All mediators (except work smart) are change scores from baseline to endpoint. All models control for a wide range of individual- and organisation-level covariates and a lagged dependent variable.
*** $p<.001$, ** $p<.01$, * $p<.05$, + $p<.1$

Fig. 1 Distribution of hours worked per week: Baseline and endpoint (n = 2,134)

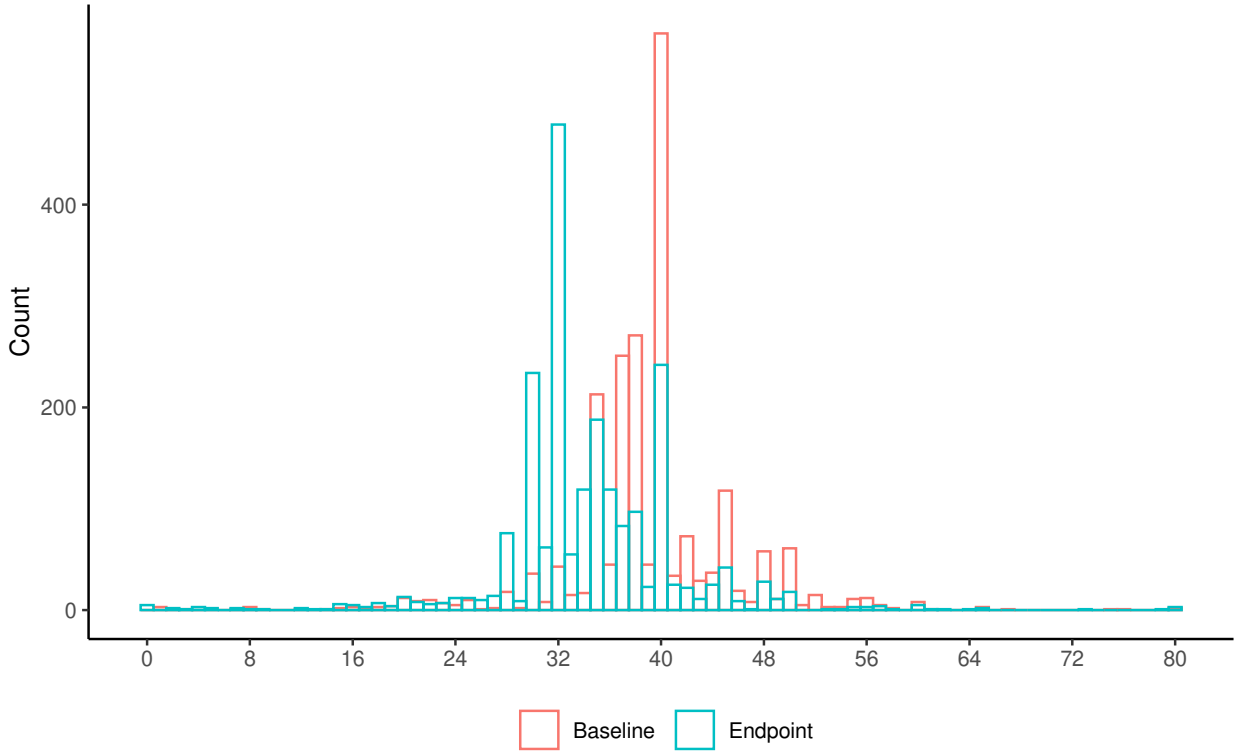
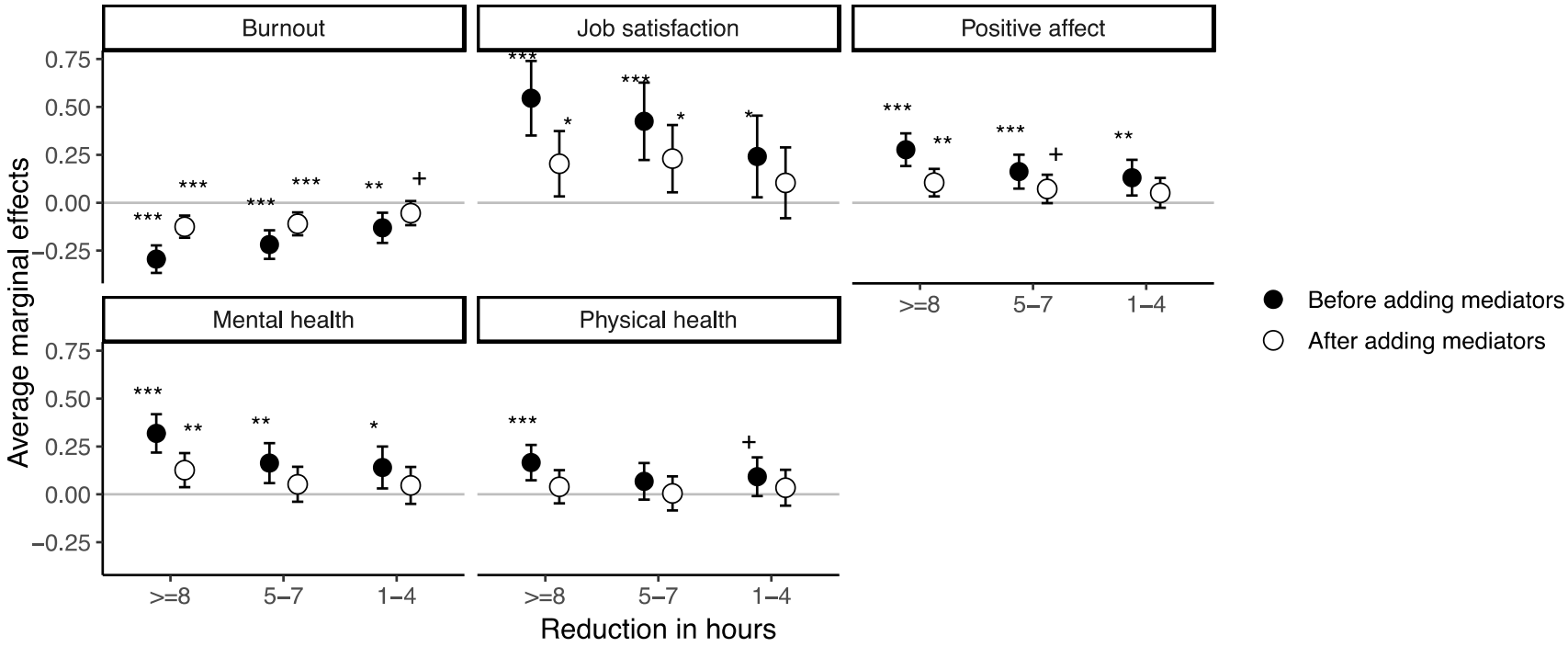


Fig. 2 Average marginal effects of reductions in work hours: Before and after adding mediators



Data points are estimates of the average marginal effects of reductions in hours (relative to stable or increased hours) on changes in well-being. Error bars are 95% confidence intervals. N = 2,134. *** p<.001, ** p<.01, * p<.05, + p<.1.

Supplementary Table 1. Descriptive statistics of control variables

	Category	Count	Percentage
Individual level variables			
Gender	Women	1,327	62.2
	Men	778	36.5
	Other	29	1.4
Age	18-34 years old	936	43.9
	35-44 years old	634	29.7
	45+ years old	564	26.4
Race	White	1,600	75.0
	Non-White	534	25.0
Education	College or above	1,577	73.9
	Below college	557	26.1
Supervisor	No	1,510	70.8
	Yes	624	29.2
Parental status	No kids at home	1,406	65.9
	Preschoolers at home	320	15.0
	School-aged kids at home	408	19.1
Elderly care responsibilities	No	1,700	79.7
	Yes	434	20.3
Country of residence	United States or Canada	594	27.8
	Australia or New Zealand	348	16.3
	United Kingdom or Ireland	1,065	49.9
	Other	127	6.0
Permanent contract	No	337	15.8
	Yes	1,797	84.2
Work shifts	No	2,013	94.3
	Yes	121	5.7
Work remotely	Fully remote	831	38.9
	Hybrid	1,025	48.0
	Work at work	278	13.0
Three consecutive days off	No	991	46.4
	Yes	1,143	53.6
Company-level variables			
Company size	Fewer than 10 employees	28	22.8
	10 or more employees	95	77.2
Company industry	IT	7	5.7
	Professional services	62	50.4
	Civil, social, and other services	15	12.2
	Construction or manufacturing	10	8.1
	Other	29	23.6

Company sector	For profit	97	78.9
	Nonprofit	26	21.1
Late baseline	No	120	97.6
	Yes	3	2.4
Batch (trial start month)	Feb 2022	4	3.3
	Apr 2022	16	13.0
	May 2022	1	0.8
	Jun 2022	45	36.6
	Jul 2022	10	8.1
	Aug 2022	19	15.5
	Sept 2022	5	4.1
	Oct 2022	18	14.6
	Nov 2022	3	2.4
	Jan 2023	2	1.6

Supplementary Table 2. Estimates from two-level mixed-effects regression models predicting changes in well-being, with all control variables

	Burnout		Job satisfaction		Positive affect		Mental health		Physical health	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Change in hours (reference: no change or increase)										
Reduced >=8 hours	-0.294***	-0.125***	0.545***	0.203*	0.277***	0.105**	0.318***	0.126**	0.166***	0.040
	(0.037)	(0.030)	(0.099)	(0.087)	(0.043)	(0.037)	(0.051)	(0.045)	(0.047)	(0.044)
Reduced 5-7 hours	-0.218***	-0.110***	0.425***	0.230*	0.162***	0.072+	0.163**	0.053	0.068	0.005
	(0.038)	(0.030)	(0.103)	(0.090)	(0.045)	(0.038)	(0.053)	(0.047)	(0.049)	(0.045)
Reduced 1-4 hours	-0.131**	-0.054+	0.241*	0.104	0.131**	0.051	0.140*	0.047	0.092+	0.035
	(0.040)	(0.032)	(0.109)	(0.094)	(0.048)	(0.040)	(0.056)	(0.049)	(0.051)	(0.048)
Current work ability		-0.083***		0.209***		0.078***		0.077***		0.042***
		(0.006)		(0.019)		(0.008)		(0.010)		(0.010)
Work smart (endpoint)		-0.088***		0.388***		0.167***		0.181***		0.114***
		(0.018)		(0.053)		(0.022)		(0.027)		(0.027)
Work intensity		0.118***		-0.121**		-0.051**		-0.061**		-0.012
		(0.013)		(0.039)		(0.017)		(0.020)		(0.020)
Work autonomy		-0.109***		0.477***		0.055*		0.064*		0.039
		(0.018)		(0.054)		(0.023)		(0.028)		(0.027)
Schedule control		-0.038*		0.138**		0.032+		0.039+		0.014
		(0.015)		(0.045)		(0.019)		(0.023)		(0.023)
Work relatedness		-0.045*		0.087		0.031		0.009		0.033
		(0.021)		(0.060)		(0.025)		(0.031)		(0.031)
Sleep problems		0.082***		-0.154***		-0.134***		-0.149***		-0.073***
		(0.013)		(0.037)		(0.016)		(0.019)		(0.019)
Fatigue		0.202***		-0.218***		-0.200***		-0.201***		-0.143***
		(0.013)		(0.039)		(0.016)		(0.020)		(0.020)
Exercise frequency		-0.021***		0.051**		0.063***		0.053***		0.084***
		(0.006)		(0.017)		(0.007)		(0.009)		(0.009)
Outcome variable at baseline	-0.537***	-0.397***	-0.513***	-0.432***	-0.643***	-0.517***	-0.539***	-0.475***	-0.501***	-0.455***
	(0.018)	(0.015)	(0.020)	(0.018)	(0.022)	(0.019)	(0.021)	(0.019)	(0.020)	(0.019)

Physical health at baseline	-0.022	-0.043***	-0.010	0.050	0.051**	0.081***	0.069**	0.113***		
	(0.015)	(0.012)	(0.038)	(0.034)	(0.018)	(0.015)	(0.022)	(0.019)		
Mental health at baseline									0.055**	0.095***
									(0.020)	(0.018)
Gender (reference: men)										
Women	-0.019	0.004	0.105	0.010	0.011	-0.025	-0.008	-0.039	0.050	0.020
	(0.029)	(0.023)	(0.077)	(0.067)	(0.034)	(0.028)	(0.041)	(0.035)	(0.037)	(0.034)
Other	0.083	0.100	-0.193	-0.191	-0.155	-0.197+	-0.064	-0.126	-0.261+	-0.309*
	(0.116)	(0.092)	(0.314)	(0.272)	(0.137)	(0.114)	(0.162)	(0.141)	(0.149)	(0.137)
Age (reference: 18-34)										
35-44	0.020	0.013	0.127	0.172*	0.001	0.015	0.084+	0.100*	-0.019	-0.010
	(0.036)	(0.028)	(0.096)	(0.083)	(0.042)	(0.035)	(0.050)	(0.043)	(0.046)	(0.042)
45+	0.019	0.012	0.098	0.116	0.036	0.046	0.176***	0.194***	-0.064	-0.062
	(0.037)	(0.030)	(0.101)	(0.087)	(0.044)	(0.037)	(0.053)	(0.046)	(0.048)	(0.044)
Race (reference: white)	-0.048	-0.019	0.010	-0.083	0.020	-0.010	0.047	0.020	-0.040	-0.053
	(0.033)	(0.027)	(0.090)	(0.078)	(0.040)	(0.033)	(0.047)	(0.041)	(0.043)	(0.040)
Education (reference: college or above)	-0.117***	-0.071**	0.158+	0.105	0.015	-0.022	-0.014	-0.037	-0.032	-0.055
	(0.033)	(0.026)	(0.089)	(0.077)	(0.039)	(0.032)	(0.046)	(0.040)	(0.042)	(0.039)
Supervisor	0.062*	0.037	0.028	0.040	-0.017	-0.025	-0.049	-0.063+	0.021	0.011
	(0.031)	(0.025)	(0.083)	(0.072)	(0.036)	(0.030)	(0.043)	(0.037)	(0.039)	(0.036)
Parental status (reference: no children at home)										
Preschoolers at home	-0.042	-0.031	0.084	0.052	-0.070	-0.064	0.018	0.026	-0.040	-0.035
	(0.041)	(0.033)	(0.112)	(0.097)	(0.049)	(0.041)	(0.058)	(0.050)	(0.053)	(0.049)
School-aged children at home	-0.073+	-0.029	0.170+	0.042	0.043	-0.002	0.061	0.022	0.003	-0.025
	(0.037)	(0.030)	(0.100)	(0.087)	(0.044)	(0.037)	(0.052)	(0.045)	(0.048)	(0.044)
Elderly care	0.025	-0.000	-0.153+	-0.095	0.013	0.027	-0.089+	-0.070+	-0.041	-0.035
	(0.034)	(0.027)	(0.092)	(0.080)	(0.040)	(0.034)	(0.047)	(0.041)	(0.044)	(0.040)
Country (reference: US/Canada)										
Australia/New Zealand	0.048	0.004	-0.122	-0.010	-0.034	-0.001	-0.124+	-0.073	-0.015	0.006
	(0.048)	(0.038)	(0.129)	(0.112)	(0.057)	(0.047)	(0.071)	(0.058)	(0.061)	(0.057)
UK/Ireland	-0.053	-0.064*	0.076	0.122	-0.018	0.002	-0.014	0.019	-0.088+	-0.061

	(0.039)	(0.031)	(0.107)	(0.092)	(0.047)	(0.039)	(0.059)	(0.048)	(0.050)	(0.047)
Other	-0.182**	-0.152**	0.124	0.139	0.110	0.094	0.104	0.120	0.022	0.028
	(0.064)	(0.051)	(0.171)	(0.148)	(0.075)	(0.062)	(0.096)	(0.077)	(0.081)	(0.075)
Permanent contract	0.100**	0.058+	-0.088	-0.017	-0.092*	-0.050	-0.029	-0.001	-0.017	0.006
	(0.039)	(0.031)	(0.105)	(0.091)	(0.046)	(0.038)	(0.054)	(0.047)	(0.050)	(0.046)
Work shifts	-0.033	-0.029	0.175	0.139	-0.047	-0.014	-0.088	-0.048	-0.057	-0.023
	(0.059)	(0.047)	(0.159)	(0.138)	(0.070)	(0.058)	(0.083)	(0.072)	(0.075)	(0.070)
Remote work (reference: work at work)										
Fully remote	-0.004	0.003	-0.021	-0.031	0.008	-0.004	-0.007	-0.031	-0.005	-0.013
	(0.045)	(0.035)	(0.121)	(0.104)	(0.053)	(0.044)	(0.063)	(0.054)	(0.057)	(0.053)
Hybrid	-0.054	-0.046	0.083	0.084	0.059	0.043	0.006	-0.024	0.008	-0.000
	(0.049)	(0.039)	(0.133)	(0.115)	(0.058)	(0.048)	(0.069)	(0.060)	(0.063)	(0.058)
Three consecutive days off	0.017	-0.015	-0.038	0.043	-0.032	0.008	-0.032	0.005	0.044	0.079*
	(0.029)	(0.023)	(0.077)	(0.067)	(0.034)	(0.028)	(0.041)	(0.035)	(0.037)	(0.034)
Company size (reference: <=10)	0.069	0.064	0.106	0.053	-0.054	-0.053	0.030	0.031	0.005	-0.007
	(0.062)	(0.049)	(0.167)	(0.145)	(0.073)	(0.061)	(0.088)	(0.075)	(0.079)	(0.073)
Industry (reference: IT)										
Professional services	0.067	0.051	-0.125	-0.059	-0.089	-0.096*	0.047	0.023	0.074	0.049
	(0.048)	(0.038)	(0.129)	(0.112)	(0.056)	(0.047)	(0.084)	(0.058)	(0.061)	(0.057)
Civil, social, and other services	-0.111	-0.062	0.089	-0.007	0.027	-0.035	0.126	0.048	0.076	0.006
	(0.069)	(0.055)	(0.187)	(0.162)	(0.082)	(0.068)	(0.115)	(0.084)	(0.089)	(0.082)
Construction/manufacturing	0.083	0.057	-0.213	-0.128	-0.104	-0.121	0.028	0.005	0.054	0.028
	(0.083)	(0.066)	(0.225)	(0.195)	(0.099)	(0.082)	(0.132)	(0.101)	(0.107)	(0.099)
Other	-0.016	0.028	-0.001	-0.073	0.062	-0.016	0.156+	0.055	0.150*	0.076
	(0.051)	(0.041)	(0.137)	(0.119)	(0.060)	(0.050)	(0.091)	(0.062)	(0.065)	(0.060)
Non-profit	0.141**	0.091*	-0.127	-0.066	-0.053	-0.017	-0.119	-0.083	0.008	0.047
	(0.047)	(0.038)	(0.128)	(0.111)	(0.056)	(0.047)	(0.074)	(0.058)	(0.061)	(0.056)
Intercept	1.204***	1.331***	3.638***	1.254***	2.282***	1.063***	1.474***	0.407**	1.498***	0.771***
	(0.126)	(0.118)	(0.319)	(0.324)	(0.139)	(0.136)	(0.164)	(0.163)	(0.143)	(0.159)
Level-1 R^2	0.337	0.581	0.349	0.541	0.336	0.541	0.273	0.447	0.269	0.375
Variance components										

Level-1 (σ^2)	0.369	0.233	2.702	2.018	0.519	0.358	0.710	0.546	0.607	0.519
Intercept (τ_{00})	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000

Notes: N=2134 employees from 123 companies. The well-being outcomes and all mediators (except work smart) are change scores from baseline to endpoint. Standard errors are in parentheses.

Level-1 R^2 represents the proportionate reduction in the sum of two variance components that results from the inclusion of predictors in the model.

*** $p<.001$, ** $p<.01$, * $p<.05$, + $p<.1$

Supplementary Table 3. Estimates from two-level mixed-effects regression models predicting changes in well-being, interaction effects

	Burnout	Job satisfaction	Positive affect	Mental health	Physical health
1. Race					
Change in hours (reference: no change or increase)					
Reduced >=8 hours	-0.259***	0.579***	0.262***	0.283***	0.112*
	(0.043)	(0.116)	(0.051)	(0.060)	(0.055)
Reduced 5-7 hours	-0.215***	0.455***	0.147**	0.159**	0.044
	(0.044)	(0.119)	(0.052)	(0.062)	(0.056)
Reduced 1-4 hours	-0.087+	0.222+	0.108*	0.120+	0.060
	(0.046)	(0.125)	(0.055)	(0.065)	(0.059)
Race (reference: white)					
Non-white	0.023	0.062	-0.024	-0.007	-0.138+
	(0.061)	(0.165)	(0.072)	(0.085)	(0.078)
Non-white * Reduced >=8 hours	-0.124	-0.122	0.050	0.126	0.189+
	(0.080)	(0.217)	(0.095)	(0.112)	(0.103)
Non-white * Reduced 5-7 hours	0.012	-0.130	0.052	-0.004	0.068
	(0.088)	(0.238)	(0.104)	(0.122)	(0.113)
Non-white * Reduced 1-4 hours	-0.179+	0.102	0.089	0.073	0.116
	(0.093)	(0.251)	(0.110)	(0.129)	(0.119)
2. Gender					
Change in hours (reference: no change or increase)					
Reduced >=8 hours	-0.244***	0.479**	0.224**	0.295***	0.138+
	(0.061)	(0.166)	(0.073)	(0.086)	(0.079)
Reduced 5-7 hours	-0.150*	0.448*	0.143+	0.158+	0.015
	(0.066)	(0.179)	(0.078)	(0.092)	(0.085)
Reduced 1-4 hours	-0.038	0.230	0.092	0.097	0.094
	(0.069)	(0.188)	(0.082)	(0.097)	(0.089)
Gender: Women and Other (reference: Men)					
Women and Other	0.059	0.070	-0.037	-0.036	0.012
	(0.059)	(0.159)	(0.070)	(0.082)	(0.075)
Women and Other * Reduced >=8 hours	-0.071	0.106	0.082	0.035	0.040
	(0.076)	(0.206)	(0.090)	(0.106)	(0.097)
Women and Other * Reduced 5-7 hours	-0.100	-0.042	0.025	0.005	0.077
	(0.081)	(0.218)	(0.096)	(0.112)	(0.103)
Women and Other * Reduced 1-4 hours	-0.138	0.015	0.057	0.066	-0.006
	(0.085)	(0.230)	(0.101)	(0.118)	(0.109)
3. Education					
Change in hours (reference: no change or increase)					
Reduced >=8 hours	-0.287***	0.515***	0.231***	0.302***	0.156**
	(0.042)	(0.114)	(0.050)	(0.059)	(0.054)
Reduced 5-7 hours	-0.263***	0.424***	0.161**	0.184**	0.086
	(0.044)	(0.120)	(0.053)	(0.062)	(0.057)

Reduced 1-4 hours	-0.155***	0.313*	0.121*	0.134*	0.123*
	(0.047)	(0.128)	(0.056)	(0.066)	(0.061)
Education (reference: college or above)					
Below college	-0.167**	0.176	-0.046	-0.020	-0.001
	(0.062)	(0.168)	(0.073)	(0.086)	(0.079)
Below college * Reduced >=8 hours	-0.036	0.121	0.182+	0.068	0.040
	(0.082)	(0.222)	(0.097)	(0.114)	(0.105)
Below college * Reduced 5-7 hours	0.172*	-0.001	0.001	-0.077	-0.075
	(0.086)	(0.232)	(0.102)	(0.119)	(0.110)
Below college * Reduced 1-4 hours	0.089	-0.254	0.038	0.023	-0.111
	(0.089)	(0.241)	(0.106)	(0.124)	(0.115)
4. Supervisor					
Change in hours (reference: no change or increase)					
Reduced >=8 hours	-0.265***	0.492***	0.242***	0.269***	0.088
	(0.044)	(0.119)	(0.052)	(0.061)	(0.056)
Reduced 5-7 hours	-0.172***	0.419***	0.147**	0.144*	0.019
	(0.045)	(0.121)	(0.053)	(0.062)	(0.057)
Reduced 1-4 hours	-0.102*	0.205	0.124*	0.152*	0.046
	(0.047)	(0.128)	(0.056)	(0.065)	(0.060)
Supervisor: Yes	0.156*	-0.055	-0.070	-0.107	-0.135+
	(0.061)	(0.164)	(0.072)	(0.084)	(0.078)
Supervisor * Reduced >=8 hours	-0.104	0.168	0.113	0.154	0.253*
	(0.079)	(0.213)	(0.093)	(0.109)	(0.101)
Supervisor * Reduced 5-7 hours	-0.168*	0.011	0.053	0.069	0.171
	(0.085)	(0.230)	(0.101)	(0.118)	(0.109)
Supervisor * Reduced 1-4 hours	-0.105	0.129	0.022	-0.043	0.163
	(0.089)	(0.242)	(0.106)	(0.124)	(0.115)
5. Remote work					
Change in hours (reference: no change or increase)					
Reduced >=8 hours	-0.279**	0.531+	0.214+	0.426**	0.190
	(0.102)	(0.277)	(0.121)	(0.143)	(0.131)
Reduced 5-7 hours	-0.174	0.196	0.184	0.314*	-0.161
	(0.108)	(0.293)	(0.128)	(0.150)	(0.139)
Reduced 1-4 hours	-0.104	0.089	0.158	0.218	0.096
	(0.114)	(0.308)	(0.135)	(0.158)	(0.146)
Remote work (reference: work at work)					
Hybrid	0.019	-0.151	0.032	0.094	-0.037
	(0.089)	(0.240)	(0.105)	(0.123)	(0.114)
Fully remote	-0.029	0.004	0.012	0.102	-0.076
	(0.091)	(0.247)	(0.108)	(0.127)	(0.117)
Hybrid * Reduced >=8 hours	-0.035	0.074	0.017	-0.135	-0.042
	(0.115)	(0.311)	(0.136)	(0.160)	(0.147)
Hybrid * Reduced 5-7 hours	-0.032	0.252	-0.070	-0.169	0.231
	(0.121)	(0.328)	(0.143)	(0.168)	(0.155)

Hybrid * Reduced 1-4 hours	-0.023	0.206	-0.059	-0.084	-0.072
	(0.127)	(0.343)	(0.150)	(0.176)	(0.162)
Fully remote * Reduced >=8 hours	0.003	-0.054	0.133	-0.107	-0.014
	(0.116)	(0.314)	(0.138)	(0.162)	(0.149)
Fully remote * Reduced 5-7 hours	-0.075	0.275	0.026	-0.177	0.291+
	(0.124)	(0.335)	(0.147)	(0.172)	(0.159)
Fully remote * Reduced 1-4 hours	-0.040	0.131	-0.004	-0.093	0.086
	(0.131)	(0.355)	(0.155)	(0.182)	(0.168)
6. Country of residence					
Change in hours (reference: no change or increase)					
Reduced >=8 hours	-0.378***	0.676***	0.354***	0.376***	0.230**
	(0.068)	(0.183)	(0.080)	(0.094)	(0.087)
Reduced 5-7 hours	-0.255**	0.573**	0.243**	0.211+	0.119
	(0.078)	(0.213)	(0.093)	(0.109)	(0.101)
Reduced 1-4 hours	-0.191*	0.446*	0.262**	0.184+	0.199*
	(0.077)	(0.210)	(0.092)	(0.108)	(0.100)
Country (reference: US/Canada)					
Australia/New Zealand	0.079	-0.083	0.014	-0.125	-0.007
	(0.088)	(0.239)	(0.104)	(0.125)	(0.113)
UK/Ireland	-0.141*	0.242	0.099	0.041	-0.005
	(0.070)	(0.189)	(0.083)	(0.101)	(0.090)
Other	-0.374**	0.616+	0.195	0.315+	0.247
	(0.126)	(0.340)	(0.149)	(0.178)	(0.161)
AU/NZ * Reduced >=8 hours	-0.081	-0.014	-0.039	0.064	0.027
	(0.110)	(0.299)	(0.131)	(0.155)	(0.142)
AU/NZ * Reduced 5-7 hours	-0.066	-0.025	-0.027	0.002	-0.056
	(0.124)	(0.336)	(0.147)	(0.173)	(0.159)
AU/NZ * Reduced 1-4 hours	-0.001	-0.100	-0.114	-0.065	0.010
	(0.124)	(0.335)	(0.147)	(0.172)	(0.159)
UK/IE * Reduced >=8 hours	0.170*	-0.182	-0.135	-0.108	-0.119
	(0.085)	(0.231)	(0.101)	(0.119)	(0.110)
UK/IE * Reduced 5-7 hours	0.081	-0.220	-0.139	-0.070	-0.050
	(0.093)	(0.253)	(0.111)	(0.131)	(0.120)
UK/IE * Reduced 1-4 hours	0.072	-0.261	-0.187+	-0.023	-0.170
	(0.095)	(0.257)	(0.113)	(0.132)	(0.122)
Other * Reduced >=8 hours	0.287+	-0.596	-0.054	-0.290	-0.202
	(0.157)	(0.427)	(0.187)	(0.220)	(0.202)
Other * Reduced 5-7 hours	0.107	-0.466	-0.047	-0.196	-0.339
	(0.174)	(0.472)	(0.207)	(0.243)	(0.224)
Other * Reduced 1-4 hours	0.433*	-1.058+	-0.340	-0.399	-0.403
	(0.200)	(0.542)	(0.238)	(0.279)	(0.257)

Notes: N=2134 employees from 123 companies. The well-being outcomes are change scores from baseline to endpoint. All models control for a wide range of individual- and organisation-level covariates and a lagged dependent variable. Standard errors are in parentheses.

*** $p<.001$, ** $p<.01$, * $p<.05$, + $p<.1$

Supplementary Table 4. Estimates from two-level mixed-effects regression models predicting changes in well-being, robustness checks

	Burnout		Job satisfaction		Positive affect		Mental health		Physical health	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Panel A. Recoding change in hours. Models have the same list of mediating and control variables as in Supplementary Table 2										
A-1										
Change in hours (reference: no change or increase)										
Reduced >8 hours	-0.284***	-0.108**	0.521***	0.160	0.280***	0.097*	0.361***	0.153**	0.150**	0.012
	(0.042)	(0.034)	(0.113)	(0.099)	(0.050)	(0.042)	(0.058)	(0.051)	(0.054)	(0.050)
Reduced 8 hours	-0.308***	-0.150***	0.581***	0.265*	0.273***	0.116*	0.257***	0.089	0.189**	0.078
	(0.047)	(0.037)	(0.126)	(0.110)	(0.055)	(0.046)	(0.065)	(0.057)	(0.060)	(0.056)
Reduced 5-7 hours	-0.219***	-0.110***	0.425***	0.231*	0.162***	0.072+	0.162**	0.052	0.068	0.006
	(0.038)	(0.030)	(0.103)	(0.090)	(0.045)	(0.038)	(0.053)	(0.047)	(0.049)	(0.045)
Reduced 1-4 hours	-0.131**	-0.054+	0.241*	0.104	0.131**	0.051	0.140*	0.047	0.092+	0.035
	(0.040)	(0.032)	(0.109)	(0.094)	(0.048)	(0.040)	(0.056)	(0.049)	(0.051)	(0.048)
A-2										
Change in hours (reference: no change or increase)										
Reduced >8 hours	-0.283***	-0.107**	0.519***	0.159	0.278***	0.096*	0.360***	0.152**	0.149**	0.011
	(0.042)	(0.034)	(0.113)	(0.099)	(0.050)	(0.042)	(0.058)	(0.051)	(0.054)	(0.050)
Reduced 5-8 hours	-0.248***	-0.123***	0.477***	0.242**	0.199***	0.086*	0.194***	0.064	0.108*	0.029
	(0.035)	(0.028)	(0.095)	(0.082)	(0.041)	(0.035)	(0.049)	(0.043)	(0.045)	(0.042)
Reduced 1-4 hours	-0.130**	-0.054+	0.240*	0.103	0.130**	0.051	0.140*	0.047	0.092+	0.034
	(0.040)	(0.032)	(0.109)	(0.094)	(0.048)	(0.040)	(0.056)	(0.049)	(0.052)	(0.048)
A-3										
Change in hours (reference: no change)										
Reduced >8 hours	-0.195***	-0.078+	0.341*	0.124	0.183**	0.052	0.249***	0.102	0.087	-0.014
	(0.051)	(0.041)	(0.137)	(0.119)	(0.060)	(0.050)	(0.070)	(0.062)	(0.065)	(0.060)
Reduced 8 hours	-0.220***	-0.121**	0.404**	0.230+	0.177**	0.072	0.147+	0.038	0.127+	0.052
	(0.054)	(0.044)	(0.148)	(0.128)	(0.065)	(0.054)	(0.076)	(0.066)	(0.070)	(0.065)
Reduced 5-7 hours	-0.129**	-0.080*	0.247+	0.195+	0.065	0.027	0.052	0.001	0.005	-0.021
	(0.048)	(0.038)	(0.129)	(0.112)	(0.056)	(0.047)	(0.066)	(0.058)	(0.061)	(0.057)
Reduced 1-4 hours	-0.041	-0.024	0.061	0.068	0.033	0.006	0.029	-0.005	0.029	0.008
	(0.049)	(0.039)	(0.134)	(0.116)	(0.058)	(0.049)	(0.069)	(0.060)	(0.063)	(0.059)

Increased	0.168**	0.056	-0.335*	-0.068	-0.182**	-0.086	-0.208**	-0.097	-0.118+	-0.051
	(0.054)	(0.043)	(0.145)	(0.126)	(0.064)	(0.053)	(0.075)	(0.066)	(0.069)	(0.064)
A-4										
Change in hours (reference: no change)										
Reduced >8 hours	-0.195***	-0.078+	0.343*	0.124	0.182**	0.051	0.249***	0.101	0.086	-0.015
	(0.051)	(0.041)	(0.137)	(0.119)	(0.060)	(0.050)	(0.070)	(0.062)	(0.065)	(0.060)
Reduced 1-8 hours	-0.118**	-0.069*	0.216+	0.158	0.078	0.029	0.064	0.007	0.040	0.005
	(0.043)	(0.035)	(0.117)	(0.101)	(0.051)	(0.043)	(0.060)	(0.053)	(0.055)	(0.051)
Increased	0.166**	0.055	-0.331*	-0.066	-0.181**	-0.085	-0.207**	-0.097	-0.117+	-0.050
	(0.054)	(0.043)	(0.145)	(0.126)	(0.064)	(0.053)	(0.075)	(0.066)	(0.069)	(0.064)
A-5										
Change in hours (reference: no change)										
Reduced >20% hours	-0.221***	-0.093*	0.389**	0.161	0.209***	0.065	0.239***	0.079	0.100	-0.009
	(0.050)	(0.040)	(0.135)	(0.117)	(0.059)	(0.049)	(0.069)	(0.061)	(0.064)	(0.059)
Reduced 0-20% hours	-0.107*	-0.064+	0.197+	0.146	0.066	0.024	0.063	0.012	0.034	0.003
	(0.043)	(0.035)	(0.117)	(0.102)	(0.051)	(0.043)	(0.060)	(0.053)	(0.056)	(0.051)
Increased	0.166**	0.056	-0.332*	-0.066	-0.181**	-0.085	-0.209**	-0.097	-0.117+	-0.050
	(0.054)	(0.043)	(0.145)	(0.126)	(0.064)	(0.053)	(0.075)	(0.066)	(0.069)	(0.064)

Panel B. Additional controls. Models have the same list of mediating and control variables as in Supplementary Table 2 plus two more shown below

Change in hours (reference: no change or increase)										
Reduced >=8 hours	-0.293***	-0.124***	0.540***	0.204*	0.266***	0.095**	0.309***	0.119**	0.153**	0.028
	(0.037)	(0.030)	(0.100)	(0.088)	(0.044)	(0.037)	(0.051)	(0.046)	(0.047)	(0.044)
Reduced 5-7 hours	-0.217***	-0.109***	0.421***	0.229*	0.159***	0.068+	0.157**	0.050	0.061	-0.001
	(0.038)	(0.031)	(0.103)	(0.090)	(0.045)	(0.038)	(0.053)	(0.047)	(0.049)	(0.045)
Reduced 1-4 hours	-0.129**	-0.054+	0.240*	0.105	0.129**	0.050	0.133*	0.043	0.087+	0.030
	(0.040)	(0.032)	(0.109)	(0.094)	(0.048)	(0.040)	(0.056)	(0.049)	(0.052)	(0.048)
Late baseline	-0.019	-0.008	-0.151	-0.263	0.055	0.006	0.069	0.007	0.048	-0.003
	(0.084)	(0.067)	(0.227)	(0.197)	(0.099)	(0.083)	(0.121)	(0.102)	(0.107)	(0.100)
Batch (reference: February 2022)										
April 2022	0.082	0.016	-0.161	-0.067	0.047	0.058	-0.018	-0.012	0.047	0.030
	(0.095)	(0.076)	(0.256)	(0.222)	(0.112)	(0.093)	(0.137)	(0.115)	(0.121)	(0.112)

May 2022	0.414	0.184	-1.073	-0.440	-0.456	-0.313	-0.380	-0.280	-0.687*	-0.638*
	(0.264)	(0.211)	(0.715)	(0.620)	(0.312)	(0.261)	(0.371)	(0.322)	(0.338)	(0.313)
June 2022	-0.001	0.001	0.237	0.225	-0.033	-0.046	-0.142	-0.146	-0.013	-0.019
	(0.082)	(0.066)	(0.222)	(0.192)	(0.097)	(0.081)	(0.120)	(0.100)	(0.105)	(0.098)
July 2022	-0.026	-0.017	0.068	0.020	0.043	0.029	-0.090	-0.109	-0.045	-0.050
	(0.100)	(0.080)	(0.270)	(0.234)	(0.118)	(0.098)	(0.145)	(0.121)	(0.128)	(0.118)
August 2022	0.040	0.034	-0.165	-0.100	-0.053	-0.065	-0.097	-0.109	-0.127	-0.151
	(0.085)	(0.068)	(0.229)	(0.199)	(0.100)	(0.084)	(0.124)	(0.103)	(0.108)	(0.101)
September 2022	-0.007	-0.008	-0.008	-0.023	-0.106	-0.112	-0.177	-0.185	-0.057	-0.071
	(0.098)	(0.078)	(0.265)	(0.230)	(0.116)	(0.097)	(0.143)	(0.120)	(0.126)	(0.117)
October 2022	0.056	0.037	-0.097	-0.054	-0.045	-0.061	0.042	0.024	0.009	-0.017
	(0.082)	(0.065)	(0.221)	(0.191)	(0.097)	(0.081)	(0.120)	(0.099)	(0.105)	(0.097)
November 2022	0.015	0.002	0.039	0.113	-0.083	-0.107	-0.117	-0.141	0.032	-0.008
	(0.114)	(0.091)	(0.308)	(0.267)	(0.135)	(0.112)	(0.165)	(0.139)	(0.146)	(0.135)
January 2023	0.103	-0.005	-0.262	-0.074	-0.183	-0.120	-0.190	-0.100	-0.048	-0.015
	(0.117)	(0.094)	(0.317)	(0.276)	(0.139)	(0.116)	(0.171)	(0.143)	(0.150)	(0.140)

Panel C. Endpoint values for work-related mediators. Models have the same list of mediating and control variables as in Supplementary Table 2

Change in hours (reference: no change or increase)					
Reduced >=8 hours	-0.104***	0.120	0.085*	0.120**	0.034
	(0.029)	(0.082)	(0.036)	(0.045)	(0.044)
Reduced 5-7 hours	-0.085**	0.137	0.039	0.037	-0.008
	(0.030)	(0.085)	(0.037)	(0.046)	(0.045)
Reduced 1-4 hours	-0.040	0.040	0.047	0.049	0.032
	(0.031)	(0.089)	(0.039)	(0.048)	(0.048)

Notes: N=2134 employees from 123 companies. The well-being outcomes are change scores from baseline to endpoint. Standard errors are in parentheses.
*** $p<.001$, ** $p<.01$, * $p<.05$, + $p<.1$