

# Effects of a Flexibility/Support Intervention on Work Performance: Evidence From the Work, Family, and Health Network

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## Abstract

**Purpose:** To estimate the effects of a workplace initiative to reduce work–family conflict on employee performance.

**Design:** A group-randomized multisite controlled experimental study with longitudinal follow-up.

**Setting:** An information technology firm.

**Participants:** Employees randomized to the intervention ( $n = 348$ ) and control condition ( $n = 345$ ).

**Intervention:** An intervention, “Start. Transform. Achieve. Results.” to enhance employees’ control over their work time, to increase supervisors’ support for this change, and to increase employees’ and supervisors’ focus on results.

**Methods:** We estimated the effect of the intervention on 9 self-reported employee performance measures using a difference-in-differences approach with generalized linear mixed models. Performance measures included actual and expected hours worked, absenteeism, and presenteeism.

**Results:** This study found little evidence that an intervention targeting work–family conflict affected employee performance. The only significant effect of the intervention was an approximately 1-hour reduction in expected work hours. After Bonferroni correction, the intervention effect is marginally insignificant at 6 months and marginally significant at 12 and 18 months.

**Conclusion:** The intervention reduced expected working time by 1 hour per week; effects on most other employee self-reported performance measures were statistically insignificant. When coupled with the other positive wellness and firm outcomes, this intervention may be useful for improving employee perceptions of increased access to personal time or personal wellness without sacrificing performance. The null effects on performance provide countervailing evidence to recent negative press on work–family and flex work initiatives.

## Keywords

work–family conflict, workplace intervention, workplace flexibility, supervisor support, field experiment, performance, productivity, well-being

## Introduction

Work–family conflict, a stress created when work demands are incompatible with nonwork demands, has received considerable recent attention in the business community. Since the economic downturn in 2007, several prominent companies have eliminated or scaled back initiatives intended to reduce work–family conflict, citing negative effects of these initiatives on performance. These companies include Amazon,<sup>1</sup> Yahoo! Inc.,<sup>2</sup> Best Buy Co, Inc.,<sup>3</sup> Bank of America,<sup>2,4</sup> and the Ford Motor Company.<sup>5</sup>

The scientific literature is mixed with respect to the effects of work–family initiatives on employee and firm performance<sup>6</sup> and organizational change.<sup>7</sup> Firms often choose these initiatives based on subjective assessments, and few studies have

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actually used rigorous designs to understand the effects of work–family initiatives on performance.<sup>6</sup> Recent decisions to scale back the use of work–family initiatives among major corporations highlight a growing need to understand the relationship between these initiatives, work–family conflict, and employee and firm performance.

Using data from the Work, Family & Health Network (WFHN) study, a group-randomized field experiment of a flexibility/support intervention in a US Fortune 500 information technology (IT) firm, we examined the longitudinal effects of a work–family initiative on self-reported employee work performance. The WFHN intervention, known as “Start. Transform. Achieve. Results.” (STAR), included 2 integrated components—(1) participatory activities to increase employees’ control over their work time and to increase employees’ and supervisors’ focus on results and (2) supervisor training and tracking activities to encourage the use of supportive supervisory behaviors for changes made during the participatory activities. This study is the first such analysis to use an experimental and a longitudinal design to assess the effects of a work–family initiative on employee performance.

## Background

Work–family conflict is a common and widely studied stressor that has been negatively associated with employee health and well-being.<sup>8–14</sup> Work–family initiatives are loosely defined as deliberate organizational changes in policies, practices, or culture that may impact work–family conflict.<sup>6</sup> These initiatives may be broader in scope or intent, promoting general wellness, productivity, or organizational goals, but in some part address work and nonwork life. Some US public policies (eg, the Family Medical Leave Act) promote basic work–life initiatives, but the majority of initiatives in the United States are firm-driven. Examples of these initiatives include telecommuting, flexible work arrangements, coworking, and work schedule and/or workload redesigns.

A comprehensive review by Kelly and colleagues<sup>6</sup> highlights the gaps in the scientific literature examining the effects of work–family initiatives on work–family conflict and performance. The direct effects of work–family initiatives on work–family conflict and performance are mixed. Recent research has instead focused on the effects of work–family initiatives on employee attitudes and behaviors, such as perceived management support, perceived work–life culture, perceived flexibility, schedule control, and burnout as an antecedent to work–family conflict. Kelly and colleagues<sup>6</sup> note that much evidence in support of work–family initiatives affecting these attitudes and behaviors is positive but mainly correlational and cross-sectional. Similarly, studies that have associated work–family conflict and employee performance have also been cross-sectional or observational studies.<sup>15,16</sup> The current analysis uses a longitudinal, group-randomized field experiment, the WFHN study,<sup>17</sup> to rigorously examine the effects of a work–family initiative on employee performance. The WFHN

intervention reduced work–family conflict<sup>7</sup> and had a positive return on investment (ROI)<sup>18</sup> at the IT firm where it took place.

This study measured employee performance across 3 domains—absenteeism, presenteeism, and total hours worked. A recent report found that access to work–family supports, supervisor supports, and flexible working arrangements are related to decreased absenteeism, increased engagement, and increased hours worked.<sup>19</sup> Absenteeism refers to a worker missing work or not fulfilling expected work responsibilities due to illness or other nonwork commitments. Stressful family relationships<sup>14,20</sup> and the need for eldercare<sup>21</sup> are common reasons for greater absenteeism. Having supportive management and flexible child care arrangements has been found to decrease absenteeism.<sup>22</sup>

Presenteeism refers to the extent to which an employee is at work but disengaged with work responsibilities. A worker may be physically at work but may be ill, distracted, or unmotivated and not performing at an expected level. Studies have shown a positive relationship between work–family conflict and presenteeism.<sup>23</sup>

The relationship between total hours worked and performance can be somewhat distorted. Workers with flexible schedules to accommodate family care needs may work fewer hours on average but may work harder during those hours, increasing performance. Total hours worked may not be a precise measure of performance in itself but is directly related to wages for nonsalaried employees and may have other implications for salaried workers.

STAR is expected to increase employee perceptions of control and support, thereby reducing work–family conflict and improving employee performance in the long term.<sup>24</sup> In the short term, the implementation of an intervention in an active workplace setting could be burdensome to workers and may consequently offset employee performance gains from reduced work–family conflict. Likewise, it could take time for the work–family conflict reductions to impact performance. We expect a priori that performance will be relatively unchanged for 6 months immediately following the implementation of STAR. At 12 and 18 months, we expect a priori that the intervention will have a positive effect on performance. Although negative effects of the intervention are possible, given the nature of work–family conflict and its specific impacts on performance as demonstrated in previous literature, we hypothesized a positive effect of the intervention on performance when the study was initially designed.

## Methods

### Intervention

STAR is designed to increase employees’ control over their work time and work schedule, to increase supervisors’ support for this change, and to increase employees’ and supervisors’ focus on results.<sup>19,25</sup> STAR involved participatory activities with employees and supervisors together and a separate supervisor training. Supervisor/employee participatory training

sessions occurred over 6 weeks. Sessions were highly scripted with structured messages presented to all study groups but also highly interactive in allowing participant responses and questions to change the discussion. Thus, every group received the same content, but the resulting outputs varied slightly to accommodate each study group's needs. Manager expectations, informal work practices, and formal company policies were common discussion topics across study groups. Common proposed changes included a reduction in required "face time" for performance evaluation, increased use of conference call lines and instant messaging as opposed to in-person meetings and drop-ins, and reduced negativity around nonwork responsibilities during business hours (eg, running an errand, taking a walk). The participatory sessions also strengthened the formal telecommuting policy and clarified work, communication, and scheduling expectations for telecommuting.

A separate, scripted, computerized training was provided to intervention supervisors that described the impacts of work-family conflict on business outcomes and reviewed behaviors and dialogue that supported both work and nonwork support. Managers used an iPod Touch to set and track goals of supportive interactions with coworkers over 2 weeks and received a personalized feedback report.

A comprehensive process evaluation was conducted alongside the implementation of the intervention to better tailor the intervention to the company's needs and to track intervention fidelity. All study groups completed the planned training sessions, which were delivered by trained STAR facilitators. The average employee attended 74% of STAR sessions, while 10% of employees attended less than half of sessions and 3.9% of employees attended no sessions.

## Design

A full description of the randomization procedure, data collection methods and measures, and predefined analysis protocols is provided by Bray et al.<sup>17</sup> STAR was implemented as part of a longitudinal, group-randomized trial using 56 study groups. Study groups were determined in collaboration with company management. We aggregated smaller teams up to a common management level. In some groups, a large team reported to a single manager. In other groups, multiple smaller teams reported to a senior executive. Study groups were spread across senior executives in the IT division and included a variety of job function and were of various sizes. These 3 criteria were used as conditions for the randomization—job function, organizational hierarchy, and size.

Study groups were sequentially randomized using an adaptive, biased coin technique.<sup>17</sup> The first 4 study groups were assigned to the intervention and control conditions using simple randomization. For each subsequently randomized group, the potential imbalance resulting from hypothetically assigning the group to either intervention or control was assessed for each criterion using standard *t* tests for work-group size and Fisher exact *F* tests for job function and organizational hierarchy. The lowest *P* value across all tests indicated the criterion and study

group assignment that would have the biggest impact on balance. The *P* value associated with this criterion was then used to update the probability of assigning that group to the intervention condition.

Employees were eligible for the baseline survey if they had noncontractor status and were located in the 2 participating locations. Employees who completed a baseline survey were eligible for follow-up unless they left the company; no employees were added to the sample after baseline. Self-report survey data were collected from employees using computer-assisted personal interviews at baseline and at 6, 12, and 18 months postbaseline by trained field interviewers who were blinded to employees' study assignment.

Employees received US\$20 for completing the survey at each time point. All study procedures were reviewed by the institutional review board of RTI International and informed consent was obtained by a trained field interviewer. Employees who refused to participate in the survey still participated in the intervention if assigned to the intervention condition. The decision to implement the intervention was made by company management as a part of normal business operations and was not presented as an elective choice for employees.

## Sample

Analyses were conducted on employees who completed baseline and at least 1 of the follow-up surveys. Of the 1 171 employees who were invited to participate in the baseline survey, 823 employees completed the baseline survey (70% response rate). In addition, 716 employees completed at least 1 follow-up interview. Fifteen employees who were randomized to the intervention condition but never invited to participate in the STAR intervention due to a staff error were excluded. Furthermore, 8 employees were excluded because they shifted reporting structures due to a business reorganization. Therefore, the final analytic sample included 693 individuals (61% of the randomized sample). For the intervention condition, the final sample included 348 employees at baseline and 6-month follow-up, 324 employees at 12-month follow-up, and 302 employees at 18-month follow-up. For the control condition, the final sample included 345 employees at baseline, 329 employees at 6-month follow-up, 334 employees at 12-month follow-up, and 345 employees at 18-month follow-up.

Kelly et al.<sup>17</sup> examined nonresponse bias in the study sample, and we summarize their findings here. Women and nonwhite employees were more likely to complete the baseline survey, and the baseline participants were younger on average than the nonparticipants. Across time, younger employees were less likely to complete the survey. Of those who completed the baseline survey, 34 employees left the company before 6-month follow-up, 24 employees left between 6- and 12-month follow-ups, and 22 employees left between 12- and 18-month follow-ups. There was no evidence that employees leaving the company after baseline were different from employees who stayed.

**Table 1.** Summary Statistics by STAR and Control Conditions.<sup>a</sup>

Variable	STAR				Control			
	Baseline	6 Months	12 Months	18 Months	Baseline	6 Months	12 Months	18 Months
n	348	348	324	302	345	329	334	345
Hours worked in the past 7 days	44.46	43.73	44.54	44.08	44.44	44.58	44.65	44.93
Expected hours to work per 7-day week	42.29	41.84	42.02	41.53	41.50	41.77	42.11	41.84
Coworkers' job performance	7.36	7.44	7.54	7.46	7.31	7.36	7.41	7.46
Personal job performance for the past 4 weeks	8.28	8.27	8.30	8.20	8.24	8.14	8.16	8.24
Absolute absenteeism	-7.55	-7.64	-8.49	-8.83	-10.72	-10.15	-9.26	-11.51
Relative absenteeism	-0.05	-0.05	-0.06	-0.05	-0.07	-0.06	-0.06	-0.10
Relative hours of work	1.05	1.05	1.06	1.05	1.07	1.06	1.06	1.10
Relative presenteeism	1.14	1.13	1.12	1.11	1.15	1.12	1.11	1.12
Productivity	1.20	1.18	1.17	1.17	1.23	1.19	1.18	1.23
Has dependent(s) at home	0.68	0.64	0.66	0.68	0.67	0.67	0.69	0.69
Age	46.17	46.75	47.53	48.24	45.88	46.38	47.10	47.89
Female	0.40	0.40	0.39	0.40	0.37	0.36	0.37	0.37
Race/ethnicity								
White, non-Hispanic	0.69	0.69	0.70	0.71	0.69	0.69	0.69	0.69
Asian Indian	0.13	0.13	0.12	0.10	0.17	0.17	0.16	0.16
Other Asian and other Pacific Islander	0.06	0.06	0.07	0.07	0.05	0.05	0.06	0.06
Hispanic	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.07
Black, other, and more than 1 race	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03

Abbreviation: STAR, Support. Transform. Achieve. Results.

<sup>a</sup>There were no significant baseline differences between STAR and control groups for any variable. All baseline differences were tested using cluster-robust standard errors.

## Outcome Measures

The WFHN survey included 4 self-reported employee performance items from the World Health Organization Health and Work Performance Questionnaire (HPQ)—[(a) *hours worked in the past 7 days*, (b) *expected hours per week*, (c) *personal job performance*] on a 10-point scale, and (d) coworker job performance on a 10-point scale.<sup>26</sup> From these 4 questions, we calculated 5 additional performance measures as recommended by Kessler et al<sup>26</sup>—absolute absenteeism ( $[4 \times b] - [4 \times a]$ ), relative absenteeism ( $[4 \times b] - [4 \times a]/[4 \times b]$ ), relative hours of work ( $a/b$ ), relative presenteeism ( $c/d$ ), and total productivity (relative hours of work  $\times$  relative presenteeism).<sup>26</sup> We assessed the effect of the intervention on 9 outcomes—the 4 HPQ questions and the 5 measures calculated from the HPQ questions.

## Analysis

A predetermined intent-to-treat (ITT), difference-in-differences approach was used to estimate the effect of the intervention on employee performance.<sup>17</sup> Intent to treat classifies employees as intervention or control strictly based on the randomization process and is a standard approach used in randomized field experiments.

The models were estimated using generalized linear mixed models with random effects for individuals and for study groups.<sup>17</sup> Binary indicators for study assignment to the intervention group, for each data collection time point (6, 12, and 18 months postbaseline), and the interaction between the

assignment and time indicators are the primary effects of interest in a difference-in-differences design, with the interaction terms capturing the intervention effect. Additional control variables include demographic characteristics, an indicator for having dependents (either children or dependent elders), and an indicator for knowledge of an impending merger that was announced during the study. We tested for moderation of the intervention effect by gender, age, race/ethnicity, and dependents using a 3-way interaction of the moderator, time indicators, and study assignment indicators. Stata version 14.0 was used to conduct all study analyses.<sup>27</sup>

## Results

Descriptive statistics for all study variables are presented in Table 1 along with *t* tests for differences between the STAR and control groups. The intervention and the control groups did not differ significantly at baseline. Employees who completed the survey were most likely to be white males in their mid-40s with a dependent at home. At baseline, STAR and control employees worked approximately 44.4 hours per week on average and were expected to work 42.3 and 41.5 hours, respectively. Both groups had almost identical self-rated performance ratings at 8.28 (intervention) and 8.24 (control). The control group had larger absolute absenteeism indexed at -10.15 compared to the STAR score of -7.55, but both groups were close in relative absenteeism, relative hours of work, relative presenteeism, and productivity.

No significant differences between the STAR and control groups in productivity measures were seen at follow-up. Actual

and expected hours decreased over time for the STAR group, whereas both measures increased for the control group. For both groups, self-rated performance increased over time, whereas absolute absenteeism, relative absenteeism, relative presenteeism, and productivity declined over time.

The generalized linear mixed model estimates are presented in Table 2. Looking first at the STAR and time main effects, there were no significant differences at baseline. Across time for the control group, the only significant effect was for expected hours of work, where expected hours of work for the control group were significantly greater at 12 months than at baseline, suggesting an increase in expected weekly hours of work of approximately 50 minutes ( $0.833 \times 60$  minutes).

Across the 9 performance outcomes, significant intervention effects were found only for expected hours worked. The intervention significantly reduced the amount of time employees reported their managers expected them to work at 6- ( $P = .021$ ), 12- ( $P = .002$ ), and 18-month follow-ups ( $P = .002$ ). The results are consistent with our hypotheses in that the magnitude of the effect is larger at 12- and 18-month follow-ups than at 6-month follow-up. The reduction in expected work hours was 68 minutes ( $-1.14 \times 60$  minutes) at 12-month follow-up and 71 minutes at 18-month follow-up ( $-1.195 \times 60$  minutes). Given that we tested a total of 27 intervention effects (6-, 12-, and 18-month effects for each of 9 performance outcomes), multiple test bias is a possible concern. A Bonferroni correction suggests a critical value of  $0.05/27 \approx 0.002$ , making the results marginally significant at 12- and 18-month follow-ups.

Although not significant, a consistent and potentially meaningful negative effect of the intervention was found on hours worked in the past 7 days. The coefficient estimate ranged from  $-1.007$  at 6 months to  $-0.385$  at 12 months. The self-rated performance measures had small, positive effects at 6- and 12-month follow-ups and a negative effect at 18-month follow-up. This pattern extends to the total productivity measure, where expected productivity increases by approximately 0.02 at 6- and 12-month follow-ups and decreases by approximately 0.03 at 18-month follow-up. Again, these estimates are imprecise, but performance improved slightly 12 months after the implementation of STAR.

The moderators thought to affect the intervention's effectiveness were also not statistically significant, so moderator analyses are not reported here. Specifically, 3-way interactions of study assignment, time and age, gender, race/ethnicity, and having dependents were not statistically significant at conventional levels. Results of all moderation models estimated are available upon request.

Finally, we conducted a simple mediational analysis using the causal steps method by including work-to-family conflict in all models.<sup>28</sup> Including work-to-family conflict did not alter the results in Table 2, suggesting that the effect of the intervention on work performance was not strongly mediated by reductions in work-to-family conflict.

## Discussion

A debate over the benefits of workplace wellness programs has recently called into question long-held beliefs about the benefit of these programs to employers.<sup>29-32</sup> In response, some authors are calling for a more nuanced examination of efforts to improve employee well-being that focuses on, among other things, the direct effect of these efforts on employee outcomes.<sup>29,33</sup> At the same time, concerns over possible adverse effects on employee performance have prompted some prominent companies to eliminate workplace programs designed to reduce work-family conflict, a major work stressor shown to have negative effects on employee health, well-being, and work performance.

Within this context, this study used multiple measures (hours worked, absenteeism, and presenteeism) to examine the work performance effects of the STAR intervention, which has been shown to reduce work-family conflict<sup>7</sup> and have a positive (although insignificant) ROI.<sup>18</sup> Using a group-randomized field experiment, this study found no evidence that an intervention targeting work-family conflict negatively affected employee performance measures of total hours worked, absenteeism, and presenteeism. The signs of the difference-in-differences effects indicated a positive effect across most of 9 performance measures, but we could not conclude with statistical certainty that such an effect exists. In the context of recent, high-profile companies abandoning flexible work policies due to performance concerns, the null findings may serve as a counterpoint to these companies' recent decisions. Small, significant decreases were observed in the number of expected hours of work in a typical week for individuals having received the intervention. Tests for moderators thought to have an effect on the intervention were not significant.

We used a predetermined ITT approach to estimate the treatment effects. Given differential participation in the intervention, ITT serves as a conservative estimate of the treatment effect. Similar to Kelly et al.,<sup>7</sup> we conducted supplemental subgroup analyses with the sample broken out between high uptake (attended 75% of sessions or more) and low uptake employees (less than 75% attendance). Excluding employees with low uptake resulted in larger intervention effects on expected hours worked, but we still did not find intervention effects for the other performance outcomes. We found similar results when we re-estimated the model broken out by study groups with high and low fidelity scores. Although the preferred approach was ITT, subgroup analysis based on uptake and fidelity imply potentially larger reduction in expected work hours but do not change the overall study conclusions.

This study is limited in that the performance measures are self-reported and other firm measures might serve as more precise performance metrics. The impact of the intervention may become more apparent after 18 months as responsibilities do not change quickly. Statistical power may also be a concern because the study was powered to detect changes in work-family conflict, not the performance measures used here. We conducted a post hoc power analysis and found we had

**Table 2.** Intervention Effects on Employee Performance.<sup>a</sup>

Variable	Individual HPQ Items				HPQ Summary Measures				
	Hours Worked in the Past 7 Days, n = 2796	Expected Hours to Work per 7-Day Week, n = 2653	Coworkers' Job Performance, n = 2755	Personal Job Performance for the Past 4 Weeks, n = 2794	Absolute Absenteeism, n = 2649	Relative Absenteeism, n = 2649	Relative Hours of Work, n = 2649	Relative Presenteeism, n = 2754	Total Productivity, n = 2611
Constant	45.135 (1.802) <sup>b</sup>	41.608 (0.953) <sup>b</sup>	6.479 (0.219) <sup>b</sup>	8.038 (0.217) <sup>b</sup>	-16.302 (6.365) <sup>c</sup>	-0.104 (0.050) <sup>c</sup>	1.104 (0.050) <sup>b</sup>	1.247 (0.040) <sup>b</sup>	1.375 (0.073) <sup>b</sup>
STAR	0.476 (0.845)	0.647 (0.415)	0.074 (0.088)	0.079 (0.081)	1.043 (2.821)	0.008 (0.023)	-0.008 (0.023)	-0.005 (0.015)	-0.020 (0.031)
6 months	0.28 (0.653)	0.414 (0.293)	0.078 (0.064)	-0.066 (0.061)	-0.294 (2.696)	-0.001 (0.024)	0.001 (0.024)	-0.024 (0.012) <sup>c</sup>	-0.025 (0.031)
12 months	0.429 (0.675)	0.833 (0.302) <sup>d</sup>	0.120 (0.066)	-0.059 (0.063)	0.183 (2.776)	0.001 (0.024)	-0.001 (0.024)	-0.031 (0.012) <sup>c</sup>	-0.032 (0.032)
18 months	0.787 (0.689)	0.565 (0.31)	0.154 (0.068) <sup>c</sup>	0.015 (0.064)	-2.049 (2.833)	-0.043 (0.025)	0.043 (0.025)	-0.027 (0.013) <sup>c</sup>	0.027 (0.033)
6-month STAR <sup>c</sup>	-1.007 (0.834)	-0.865 (0.374) <sup>c</sup>	0.018 (0.081)	0.056 (0.078)	-0.297 (3.477)	0.002 (0.031)	-0.002 (0.031)	0.008 (0.015)	0.021 (0.040)
12-month STAR <sup>c</sup>	-0.385 (0.84)	-1.140 (0.376) <sup>d</sup>	0.06 (0.082)	0.062 (0.078)	-1.88 (3.497)	-0.011 (0.031)	0.011 (0.031)	0.003 (0.015)	0.022 (0.040)
18-month STAR <sup>c</sup>	-0.9 (0.859)	-1.195 (0.385) <sup>d</sup>	-0.075 (0.084)	-0.104 (0.08)	-0.557 (3.574)	0.029 (0.032)	-0.029 (0.032)	0.002 (0.015)	-0.028 (0.041)

Abbreviations: HPQ, Health and Work Performance Questionnaire; STAR, Support Transform Achieve Results.

<sup>a</sup>Standard errors are presented in parentheses. Models include age, gender, race/ethnicity, whether the respondent had a dependent, an indicator for the concurrent merger, and randomization variables capturing the number of employees and the core function of the study group.

<sup>b</sup>Statistically significant difference between the intervention and control groups at .05 level.

<sup>c</sup>Statistically significant difference between the intervention and control groups at .01 level.

<sup>d</sup>Statistically significant difference between the intervention and control groups at .001 level.

sufficient power to detect medium effects (Cohen  $d < .5$ ) for all outcomes and small effects (Cohen  $d < .3$ ) for all outcomes except relative absenteeism, relative hours of work, and total productivity. Although this result is encouraging overall, many of the effects on the HPQ summary measures in Table 2 are small (less than 0.1) and suggest that statistical power is a limitation. Finally, external validity of this study may be limited. The sample was drawn from an IT division within a single US Fortune 500 organization, where employees developed software, tested applications, answered network problems, and served as project managers and administrative staff. Extrapolation to other occupational functions and industries should be cautioned.

This analysis contributes to the current debate regarding the value and effectiveness of workplace wellness programs. In contrast to other studies in the literature, we used a rigorous longitudinal and experimental design to focus on 1 specific and policy-relevant workplace outcome—employee work performance. We find no conclusive evidence that a flexibility/support intervention affects employee performance across time, which stands in contrast to the recent actions by major corporations that dropped work–family initiatives over concerns about employee work performance. Coupled with strong evidence of reduced employee work–family conflict and suggestive evidence of a positive ROI, the WFHN study provides

employers and policy makers with positive evidence for workplace wellness programs.

More rigorous studies of workplace wellness programs are needed to validate the null effects of the STAR intervention on employee performance in other industries. The study population and work setting may have been more conducive to a flexibility and support-focused initiative than other work settings that either require in-person interaction (eg, health-care settings). The STAR may have more prominent performance effects elsewhere. Moreover, the present study tested an intervention that combined 2 separately validated components. Although the intervention components are translatable and customizable across work settings, the relative importance of each component may vary across settings. Future research should attempt to vet the relative contributions of each component.

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### References

1. Kantor J, Streitfeld D. Inside Amazon: wrestling big ideas in a bruising workplace. *The New York Times*. August 15, 2015.
2. Miller CC, Perloth N. Yahoo says new policy is meant to raise morale. *The New York Times*. March 5, 2013.
3. Lee T. Best Buy ends flexible work program for its corporate employees. *Star Tribune*. December 3, 2013.
4. Dunn A. Bank of America to cut back at-home workers. *The News & Observer*. December 8, 2012.
5. Hill M. Is telecommuting a reasonable accommodation for a disability in the US? Employment Law Worldview Blog. Squire Sanders.com. 2014. <http://www.employmentlawworldview.com/s-telecommuting-a-reasonable-accommodation-for-a-disability-in-the-us/>. Accessed December 2, 2016.
6. Kelly EL, Kossek EE, Hammer LB, et al. Getting there from here: research on the effects of work–family initiatives on work–family

### SO WHAT? Implications For Health Promotion Practitioners and Researchers

#### *What is already known on this topic?*

Although work–family conflict is a widely recognized stressor that negatively affects well-being, the effects of work–family initiatives on employee performance are not well understood.

#### *What does this article add?*

Using a rigorous group-randomized design with a longitudinal follow-up, we found that a work–family initiative has no detectable effects on employee performance. To date, few studies have directly assessed work–family initiatives using both randomization and longitudinal follow-up.

#### *What are the implications for health promotion practice or research?*

Coupled with positive well-being and ROI benefits found from other studies of the STAR intervention, the null effects on performance provide countervailing evidence to recent negative press on work–family and flex work initiatives.

- conflict and business outcomes. *Acad Manag Ann.* 2008;2:305-349.
7. Kelly EL, Moen P, Oakes JM, et al. Changing work and work-family conflict: evidence from the Work, Family, and Health Network. *Am Sociol Rev.* 2014;79(3):485-516.
  8. Frone M, Russell M, Cooper M. Relation of work-family conflict to health outcomes: a four-year longitudinal study of employed parents. *J Occup Organ Psychol.* 1997;70(4):325-335.
  9. Frone MR. Work-family conflict and employee psychiatric disorders: the National Comorbidity Survey. *J Appl Psychol.* 2000;85(6):888-895.
  10. Greenhaus JH, Allen TD, Spector PE. Health consequences of work-family conflict: the dark side of the work-family interface. In: Perrewe PL, Ganster DC, eds. *Research in Occupational Stress and Well Being.* Amsterdam, the Netherlands: JAI; 2006:171-211.
  11. Grzywacz J, Bass B. Work, family, and mental health: testing different models of work-family fit. *J Marriage Family.* 2003;65(1):248-262.
  12. Grzywacz JG. Work-family spillover and health during midlife: is managing conflict everything? *Am J Health Promot.* 2000;14(4):236-243.
  13. Melchior M, Berkman LF, Niedhammer I, Zins M, Goldberg M. The mental health effects of multiple work and family demands. A prospective study of psychiatric sickness absence in the French GAZEL study. *Soc Psychiatry Psychiatr Epidemiol.* 2007;42(7):573-582.
  14. Vaananen A, Kevin MV, Ala-Mursula L, Pentti J, Kivimaki M, Vahtera J. The double burden of and negative spillover between paid and domestic work: associations with health among men and women. *Women Health.* 2004;40(3):1-18.
  15. Netemeyer RG, Maxham JG, Pullig C. Conflicts in the work-family interface: links to job stress, customer service employee performance, and customer purchase intent. *J Marketing.* 2005;69(2):130-143.
  16. Moen P, Kelly EL, Fan W, et al. Does a flexibility/support organizational initiative improve high-tech employees' well-being? Evidence from the work, family, and health network. *Am Sociol Rev.* 2016;81(1):134-164.
  17. Bray JW, Kelly EL, Hammer LB, et al. *An Integrative, Multilevel, and Transdisciplinary Research Approach to Challenges of Work Family, and Health.* Research Triangle Park, NC: RTI Press; 2013. Report No.: RTI Press publication No. MR-0024-1303.
  18. Barbosa C, Bray JW, Dowd WN, et al. Return on investment of a work-family intervention: evidence from the Work, Family, and Health Network. *J Occup Environ Med.* 2015;57(9):943-951.
  19. Kossek EE, Hammer LB, Kelly EL, Moen P. Designing work, family and health organizational change initiatives. *Organ Dyn.* 2014;43(1):53-63.
  20. Jacobson BH., Aldana SG, Goetzel RZ, Vardell KD, Adams TB, Pietras RJ. The relationship between perceived stress and self-reported illness related absenteeism. *Am J Health Promot.* 1996;11(1):54-61.
  21. Gignac MAM, Kelloway EK, Gottlieb BH. The impact of caregiving on employment: a mediational model of work family-conflict. *Can J Aging.* 1996;15(4):525-542.
  22. Goff SJ, Mount MK, Jamison RL. Employer supported child care, work/family conflict, and absenteeism: a field study. *Pers Psychol.* 1990;43(4):793-809.
  23. Drory A, Shamir B. Effects of organizational and life variables on job satisfaction and burnout. *Group Organ Stud.* 1988;13(4):441-455.
  24. King RB, Karantzios G, Casper LM, et al. Work-family balance issues and work-leave policies. In: Gatchel R, Schultz IZ, eds. *Handbook of Occupational Health and Wellness.* New York, NY: Springer Science+Business Media; 2012:323-339.
  25. Kossek E, Wipfli B, Thompson R, Brockwood K; The Work Family Health Network Writing Team. The Work, Family & Health Network intervention: core elements and customization for diverse occupational health contexts. In: Leong F, Eggerth D, Chang D, Flynn M, Ford K, Martinez R, eds. *Occupational Health Disparities Among Racial and Ethnic Minorities: Formulating Research Needs and Directions.* Washington, DC: APA; In press.
  26. Kessler RC, Barber C, Beck A, et al. The World Health Organization Health and Work Performance Questionnaire (HPQ). *J Occup Environ Med.* 2003;45(2):156-174.
  27. StataCorp. *Stata Statistical Software: Release 14.* College Station, TX: StataCorp LP; 2015.
  28. MacKinnon DP, Fairchild AJ, Fritz MS. Mediation analysis. *Annu Rev Psychol.* 2007;58:593-614.
  29. Goetzel R. The value of workplace health promotion (wellness) programs. Health Affairs Blog. 2014. <http://healthaffairs.org/blog/2013/10/30/workplace-wellness-programs-continuing-the-discussion-with-ron-goetzel/>. Accessed December 2, 2016.
  30. Goetzel R. Workplace wellness programs: continuing the discussion. Health Affairs Blog. 2014. <http://healthaffairs.org/blog/2014/01/27/workplace-wellness-programs-continuing-the-discussion/>. Accessed December 2, 2016.
  31. Goetzel RZ, Henke RM, Tabrizi M, et al. Do workplace health promotion (wellness) programs work? *J Occup Environ Med.* 2014;56(9):927-934.
  32. Horwitz JR, Kelly BD, DiNardo JE. Wellness incentives in the workplace: cost savings through cost shifting to unhealthy workers. *Health Aff (Millwood).* 2013;32(3):468-476.
  33. Goetzel RZ. Do prevention or treatment services save money? The wrong debate. *Health Aff (Millwood).* 2009;28(1):37-41.