Workplace Culture and Paternal Involvement in Childcare*

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Abstract

Paternity leave policies alone do not necessarily close gender gaps in unpaid work, particularly where workplace cultures discourage uptake. We conduct a randomized controlled trial with over 1,100 male employees in four organizations to evaluate two workplace interventions: work-life balance training for employees and managers, and information correcting misperceptions about colleagues' attitudes toward paternity leave. Training significantly increased fathers' weekend childcare time and spousal labor supply, especially among those with young children. Information provision reduced norm misperceptions but had limited behavioral impact. Our findings show that low-cost, employer-led interventions can complement policy by addressing cultural barriers to paternal engagement within the workplace.

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1 Introduction

Despite decades of progress in women's educational attainment and labor force participation, gender disparities in household responsibilities remain remarkably persistent across developed economies. This persistence carries substantial economic costs: as Cortés and Pan (2023) demonstrate, the unequal division of childcare and domestic work following parenthood explains a large share of remaining gender gaps in earnings, career advancement, and leadership representation. Beyond labor market consequences, more equitable sharing of domestic responsibilities may enhance children's developmental outcomes and increase fertility rates in low-fertility societies.[1]

To increase men's participation in childcare and housework, paternity leave reforms have emerged as a prominent policy intervention. "Daddy quotas," non-transferable leave periods reserved exclusively for fathers, have substantially increased paternity leave uptake in the Nordic countries, Germany, and Quebec.[2] In some contexts, these reforms also induced lasting behavioral changes, with fathers maintaining higher levels of childcare and domestic engagement years after returning to work (Tamm, 2019; Patnaik, 2019). However, such successes in getting men more involved in household responsibilities have occurred in societies with more progressive workplace cultures. In countries with traditional workplace norms, paternity leave uptake remains low despite generous policies, and fathers continue to do far less childcare and housework than mothers.

Japan illustrates the limits of policy generosity when workplace cultures remain unsupportive. Women do more than four times more unpaid care work than men, reflecting one of the world's most extreme gender gaps in household responsibilities.[3] Despite offering some of the world's most extensive paternity leave benefits, which allow up to 12 months of paid leave[4], only about 30% of eligible fathers take any leave. Survey evidence shows that Japanese fathers often cite workplace culture as the main barrier.[5] Even generous policies cannot overcome organizational norms that penalize men for prioritizing family over work. Promoting gender equality at home thus requires interventions that directly target workplace culture alongside economic support.

To address these workplace culture barriers, we ask: can targeted workplace interventions increase paternal involvement in childcare when generous policies already exist but cultural norms constrain uptake? We conduct a field experiment involving over 1,100 male employees across 84 branches and offices within four Japanese organizations to eval-

[1] See, for example, Sarkadi et al. (2008) on child development and Doepke and Kindermann (2019) on fertility.

[2] See Dahl et al. (2014); Ekberg et al. (2013); Olafsson and Steingrimsdottir (2020); Tamm (2019); Patnaik (2019) for evidence on increased paternity leave uptake in these settings.

[3] OECD (2023)

[4] Japanese paternity leave benefits typically provide income replacement of 67% for the first six months and 50% thereafter; see Ministry of Health, Labour and Welfare (2021).

[5] Mitsubishi UFJ Research and Consulting (2018)

uate two complementary interventions designed to promote paternal involvement: (1) a training intervention and (2) an information provision intervention. Critically, we target men directly rather than women, departing from existing gender equality interventions that focus on changing women's behavior.

Our training intervention can change workplace culture through three channels. First, the content focuses on maintaining workplace performance during the childcare period, which reduces fathers' concerns that taking leave signals weak commitment. Second, the sessions are led by male instructors who serve as credible role models of working fathers and demonstrate that active involvement in childcare is compatible with career success. Third, the intervention helps overcome the coordination failure created by implicit tournaments within firms. As shown by Johnsen et al. (2024), men avoid leave when they fear falling behind peers who remain at work. Because our program is employer-sponsored and accompanied by explicit encouragement from management, participants expect more symmetric leave-taking among colleagues. This reduces the perceived career risk of taking paternity leave and makes it easier for fathers to act on their preferences.

Our information provision intervention targets norm misperception through correction of pluralistic ignorance, where individuals may privately support paternity leave but incorrectly believe colleagues and managers disapprove. As Bursztyn et al. (2020) demonstrate in other contexts, information provision can effectively change behavior when individuals hold private views that differ from their perceptions of others' attitudes. Miyajima and Yamaguchi (2017) provide direct evidence of this phenomenon in Japan, where men systematically underestimate colleagues' support for paternal involvement, which we confirm in our own data. We employ a light-touch approach, revealing actual colleague attitudes toward paternity leave within participants' own organizations to correct misperceptions about workplace norms.

Our approach makes a key contribution by providing the first experimental evidence on workplace interventions specifically designed to target men to promote gender equality in household responsibilities. While previous interventions have largely focused on changing women's behavior or providing women with better workplace accommodations, we address gender inequality by directly targeting the constraints that limit men's participation in childcare and domestic work. This represents a novel approach that shifts from expecting women to manage both career and family demands to enabling more equitable household labor division. We demonstrate that relatively low-cost, short-duration interventions can generate meaningful behavioral changes in household time allocation. Unlike comprehensive organizational restructuring programs, our employer-sponsored seminars require minimal operational changes while producing measurable effects on fathers' childcare involvement and mothers' labor force participation.

Our experimental design employs a cluster-randomized controlled trial spanning over six months through a baseline survey and two follow-up surveys. The training inter-

vention is randomized at the branch/office level using an early versus delayed treatment design, while the information provision intervention is randomized at the individual level among non-managers. Data collection occurs between August 2023 and March 2024, with sufficient time between interventions and surveys to detect potential effects on behavioral and workplace outcomes. The training intervention occurs between the baseline and first follow-up surveys for the treated group, while the control group receives delayed treatment between the first and second follow-up surveys. The information provision intervention is embedded within the first follow-up survey, where treated participants receive accurate information about colleague and manager attitudes before answering outcome questions.

Our outcome measures include attitudes toward paternity leave, time allocation across childcare, housework, and work hours, and spouse labor supply. To address potential response bias arising from participants' tendency to provide socially desirable answers, we ensured full anonymity in all survey responses and followed Dhar et al. (2022) by incorporating the Social Desirability Scale developed by Crowne and Marlowe (1960) to control for such bias in our analysis. In addition, our empirical strategy includes a simple logic check that enables us to assess whether the observed patterns are consistent with genuine behavioral change rather than mechanically inflated self-reports. Taken together, these design features provide confidence that our results are not driven by desirability bias.

Our findings demonstrate that workplace interventions can meaningfully promote paternal involvement. The training improved beliefs about the workplace benefits of paternity leave by 0.4 standard deviations and generated substantial behavioral change. Most notably, fathers increased their weekend childcare time by 0.49 hours per day, a 15 percent rise relative to baseline. Importantly, this additional paternal involvement did not crowd out mothers' childcare, indicating that the intervention expanded total household investment in childcare rather than merely reallocating it between parents. The intervention also affected household labor supply and domestic production. Spouses of treated fathers increased their weekly work hours by 1.74 hours, and mothers reduced their housework time. Taken together, these shifts suggest that a brief, employer-sponsored training session can alter household time allocation by raising paternal engagement and enabling greater maternal labor market participation.

The information provision intervention successfully reduced misperceptions about colleague attitudes, narrowing the gap between perceived and actual support by 0.19 standard deviations. However, this correction of pluralistic ignorance showed more limited behavioral impact compared to the comprehensive training approach, suggesting that while correcting misperceptions is necessary, it may not be sufficient to generate substantial behavioral change without accompanying efforts to strengthen positive attitudes and organizational support.

Our findings reveal substantial positive externalities of the training intervention, as

spouses who were not directly exposed to it nonetheless increased their labor supply, exhibiting the social benefits in addition to the private benefits captured by participating firms and employees. This spillover effect provides economic justification for government subsidization of workplace paternity leave interventions, as private actors would otherwise under-provide these socially beneficial programs relative to the optimal level. These findings have implications beyond Japan, as workplace culture barriers to paternal involvement persist across diverse national contexts, from traditional societies to progressive countries like Sweden where organizational norms still constrain policy effectiveness (Haas and Hwang, 2019).

We contribute to a large literature on workplace interventions designed to promote gender equality. Much of this work focuses on empowering women, for example through leadership training, mentoring, or programs that aim to increase willingness to compete (e.g., Kelly et al. (2014); Moen et al. (2016); Bandiera et al. (2020); Boneva et al. (2024); Macchiavello et al. (2024)). Other studies seek to reduce bias in evaluation and promotion by targeting supervisors or organizational procedures, such as structured performance reviews or blind screening (e.g., Goldin and Rouse (2000); Bohnet et al. (2016)). These approaches have generated significant progress but they leave largely unchanged the unequal distribution of household responsibilities, which remains a central constraint on women's career advancement. Our study addresses this gap by targeting men directly. Rather than helping women do more or making evaluation procedures fairer, our intervention encourages men to take on a larger share of unpaid work at home. By promoting paternal involvement through a workplace-based program, we complement existing efforts by tackling a structural barrier that has received comparatively little attention: gender norms surrounding caregiving and domestic labor.

Our paper is also related to the literature on pluralistic ignorance and belief correction. Bursztyn et al. (2020) show that individuals systematically underestimate support for progressive norms and that revealing actual peer beliefs can shift intentions. Our study applies a similar idea in the field by using survey data from respondents' own organization. Compared to Bertrand et al. (2024), who draw on public opinion data from the general population, our intervention provides more localized and context-specific information. This distinction is important because individuals may reasonably discount broad societal views when making workplace decisions, whereas information from colleagues is more difficult to ignore. Despite this design advantage, we find no behavioral response to the information treatment, which suggests that belief updating alone may not be sufficient in organizational settings where reputational concerns or identity norms constrain action. The contrast with the training intervention reinforces this point: without stronger persuasive or legitimizing elements, information provision may fail to induce behavioral change even when it corrects misperceptions.

The remainder of the paper is organized as follows. Section 2 describes the insti-

tutional background, focusing on Japan's parental leave system and the participating organizations. Section 3 outlines the research design, detailing the two interventions and randomization procedures. Section 4 presents descriptive statistics and examines baseline balance across treatment groups. Section 5 reports the main results on attitudes, behaviors, and spousal labor outcomes, and Section 6 provides robustness checks and additional analyses. Section 7 concludes with policy implications and directions for future research.

2 Institutional Background

Japan exhibits pronounced gender disparities despite high female labor force participation. Women earn about 22 percent less than men and hold only around 13 percent of managerial positions, placing Japan near the bottom of OECD rankings. Household time-use data show even larger imbalances: Japanese women spend roughly seven hours per day on unpaid care work, which is about 5.5 times the amount done by men. Because total hours of paid and unpaid work are similar for men and women, the core issue is not overall work effort but the rigid allocation of tasks within households. These structural patterns limit women's career advancement and constrain men's involvement at home, shaping the institutional environment relevant to our study (OECD, 2023).

Japan has adopted one of the world's most generous paternity leave schemes to promote fathers' involvement in childcare. Eligible fathers can take up to twelve months of leave with substantial income replacement, yet uptake remains limited. In 2023, roughly 30 percent of eligible fathers used paternity leave, still far below participation rates in countries with dedicated father quotas such as Norway, Sweden, or Quebec (UNICEF, 2022; Ministry of Health, Labour and Welfare, 2021). This sustained gap between statutory generosity and actual behavior indicates that policy reforms alone have not been sufficient to shift paternal involvement.

A growing body of evidence points to the role of persistent social norms and workplace culture in shaping these outcomes. Survey data show that traditional gender attitudes remain widespread; more than one quarter of respondents agree that maternal employment harms children (Haerpfer et al., 2020). These views manifest directly in organizational settings: among fathers who forego leave, a substantial share report an unsupportive workplace atmosphere as a key deterrent (Mitsubishi UFJ Research and Consulting, 2018). Together, these patterns underscore a structural implementation gap in which formal entitlements exist but prevailing norms and expectations limit their use. Addressing this gap requires interventions that operate at the workplace level rather than relying solely on statutory policy.

Japan's childcare system is dominated by publicly subsidized centers, serving the vast majority of children. Nearly all children aged 3 to 5 attend licensed facilities, which have

been tuition-free since 2019, and care for infants and toddlers is heavily subsidized for households with children under age 3.[6] Public funding covers most operating costs, keeping out-of-pocket expenses low for families. Despite this financial accessibility, childcare services remain concentrated in standard weekday hours. Only 6.5 percent of centers offer weekend care, and even where extended-hour services are available, 83.6 percent provide less than two additional hours per day. These operational constraints limit fathers' opportunities to participate in childcare during weekdays, concentrating most involvement around drop-off and pickup (National Council of Nursery Schools, 2022).

Alternative childcare arrangements are extremely limited in Japan. National statistics indicate that only 0.4 percent of two-year-old children receive care from babysitters (Ministry of Health and Welfare, 2012). The use of paid home-support services is similarly rare, with only 1.8 percent of households reporting current use (Ministry of Economy and Industry, 2024). These figures show that supplemental childcare options outside formal centers are scarce, leaving most families without flexible coverage and limiting the scope for fathers to increase their weekday involvement.

Social norms in Japan place unusually demanding expectations on mothers, particularly in the area of household production. A well known illustration is the kyaraben culture, in which mothers are expected to prepare visually elaborate lunch boxes styled after cartoon characters rather than rely on simpler or store-bought options (Oi, 2019). Time-use statistics reinforce this pattern. For example, 55.5 percent of Japanese women cook and wash dishes at least three times per day, compared with 26.0 percent of women in the United States (Japan Institute for Labour Policy and Training, 2017). Given these high standards, simply lowering expectations for daily cooking and cleaning can meaningfully reduce mothers' time burdens. More flexible norms would be a sensible and time-saving adaptation that supports narrowing gender gaps in household labor.

3 Research Design

3.1 Recruitment

We collaborated with a Japanese non-profit organization[7] to recruit participating organizations. We announced the program as a scientific initiative designed to encourage paternity leave uptake, highlighting both its overall objectives and the package of activities it entailed, including training sessions and survey components. In response, two

[6] See OECD (2024). Although Japan previously faced substantial childcare waiting lists (Yamaguchi et al., 2018b,a), capacity expansion and declining birth rates have eased shortages.

[7] The organization is Evidence Studio (ES), formerly known as Data for Social Transformation. Established in 2022 by executives from listed Japanese companies and researchers across disciplines, ES promotes evidence-based decision-making in industry and policy. Its programs address social issues including healthcare, welfare, poverty, and education.

private firms and two municipal government offices applied to join.

The broader policy environment helps explain why both private firms and municipalities were interested. At the time, Japanese firms faced growing pressure to advance gender equality, as new regulations required disclosure of indicators such as the gender wage gap and male paternity leave take-up. A Cabinet Office ordinance enacted in January 2023 further mandated that listed firms report these figures in their securities filings for fiscal years ending in or after March 2023. This regulatory pressure likely contributed to the participation of the private firms. Although municipalities were not directly subject to the disclosure requirement, paternity leave was a salient social issue that motivated their involvement.

The participating organizations represent typical employers from both the public and private sectors in Japan. The two municipal government offices are located in mid-sized municipalities with populations between 100,000 and 200,000. The two private firms are listed companies in the retail and wholesale industry, headquartered in Tokyo with branch offices distributed nationwide. Taken together, these organizations are broadly comparable to the national average, and thus do not represent extreme outliers in terms of size, industry, or composition.

Appendix Table C.2 provides supporting evidence, reporting pre-intervention paternity leave take-up rates as well as the proportions of female employees and female managers. The share of female managers, at roughly 10 percent, is close to the national average for Japanese firms and therefore not unusually low. Paternity leave take-up rates differ substantially across organizations. Among the private firms, one did not disclose this figure, while the other reported a rate of about 20 percent—well below the average of 52.2 percent among publicly listed firms.

Employees who participated in the program came from diverse backgrounds within their organizations. In the municipal governments, participants were local officials engaged in standard resident support services at city halls. In the private firms, participants were drawn from a wide range of occupations, including sales, promotions, marketing, finance, product development, strategic planning, and auditing. They were located across both headquarters and regional branches, ensuring representation from multiple divisions and geographic areas.

3.2 Interventions

To evaluate the effectiveness of the workplace interventions, we conducted field experiments within the four participating organizations. We randomized treatment assignments for two types of interventions, WLB training program and information provision, and conducted surveys before and after the interventions.

3.2.1 WLB Training Program

Program Content The work–life balance (WLB) training program is a comprehensive seminar designed for male employees in workplaces where paternity leave has not yet been widely adopted. It was developed and delivered by another nonprofit organization.[8] Separate sessions were provided for managers and non-managers. The non-manager session targeted male employees uncertain about how to begin engaging in childcare, including those who had not yet become fathers. The manager session was directed at supervisors responsible for creating supportive and flexible work environments that enable employees' involvement in childcare. By offering both sessions simultaneously, the program aimed to foster organizational cultures conducive to paternity leave uptake.

Both sessions followed a common curriculum, with content tailored to participants' roles. Importantly, the instructors themselves were men who had raised children while achieving success in business careers. Their presence provided participants with visible role models of working fathers who reconciled demanding professional trajectories with active childcare involvement. The curriculum was designed not only to deliver practical knowledge but also to encourage shifts in participants' attitudes toward fatherhood.

Each session began with an overview of paternity leave policies in Japan. The second part highlighted the benefits of active paternal involvement across three domains. First, for families and children, it strengthens couples' relationships in the post-childbirth stage and supports children's cognitive and social development. The instructors emphasized that childcare is difficult for one parent to shoulder alone and underscored the importance of fathers' participation from the earliest stages after birth. Second, for fathers themselves, active involvement enhances work–life satisfaction by encouraging them to design their careers in tandem with their family lives. Third, for companies, it improves teamwork and strengthens management skills through the coordination of childcare responsibilities.

The manager session further addressed the organizational advantages of promoting paternity leave and provided practical strategies for supporting subordinates with childcare responsibilities. These strategies included effective communication with employees who are parents and the design of evaluation systems that account for family commitments. Both sessions concluded with a 10-minute group discussion.

The program was designed to be cost- and time-efficient. Each session lasted approximately two hours and was offered as an online live seminar. Employees were invited to attend either the manager or non-manager session. Those unable to participate in real time were given access to recorded versions, and compliance was ensured by requiring participants to complete the recordings by a specified deadline. Crucially, the sessions were sponsored by the participating employers and conducted during regular working

[8] This NPO is Fathering Japan.

hours, sending a strong organizational signal that childcare involvement and paternity leave are actively supported.

Taken together, the WLB training combined informational content with visible role models and institutional endorsement, thereby offering both individual- and organization-level mechanisms to shift workplace norms around fatherhood.

Randomization of Training Sessions The training intervention was randomly assigned by dividing the 84 participating branches and offices into a training treatment group (early treated) and a control group (later treated). We used stratified randomization to account for organizational differences. The two municipal governments were grouped into one stratum, all establishments of one private firm formed another stratum, and the establishments of the remaining private firm were divided into two strata to reflect its larger size and internal organizational structure.

At the outset of the project, the human resources divisions of the four organizations circulated an invitation to the training program to all employees (Appendix D.1 reproduces the invitation letter). The invitation included a link to an online form through which employees could register for the program. Registered employees subsequently received a link to the baseline survey. In total, 1,962 employees across 80 branch offices, representing 12.4 percent of all employees in the four organizations, signed up for the training program.[9] Sign-up rates at the branch-office level were not significantly correlated with treatment assignment (Appendix Table C.1). As a robustness check, Appendix B restricts the analysis to the organization with the highest sign-up rate, and the main findings remain unchanged.

3.2.2 Information Provision

The information experiment was designed to shift the perceptions of male subordinates who hesitate to take paternity leave because of concerns about how they are viewed in the workplace. Our baseline survey provides evidence of pluralistic ignorance: although supervisors and coworkers generally expressed favorable views toward paternity leave, subordinates tended to underestimate this support. Building on previous studies that highlight the role of information provision in changing perceived social norms (Bursztyn et al., 2020; Bertrand et al., 2024), we provided participants with accurate information about second-order beliefs, in particular their colleagues' and supervisors' actual attitudes toward paternity leave. By correcting the overestimation of negative second-order beliefs, sometimes referred to as a "wedge," we aim to reduce the perceived social costs of taking paternity leave and to encourage greater uptake.

[9]The invitation was sent to both male and female employees. The sign-up rate reported here includes female participants, although the registration form did not collect gender information.

We conducted the information provision experiment through an online survey administered in parallel with the WLB training intervention. In the baseline survey, respondents and their managers were asked about their own beliefs regarding workplace norms surrounding paternity leave uptake. Specifically, each respondent reported on a six-point scale the extent to which they personally agreed with the following statement, which is drawn from standardized questions commonly used in public opinion surveys, including the Cabinet Office Opinion Poll:

> "It is good for men to take leave for childcare or caregiving."

We then elicited second-order beliefs by asking participants how much they thought their coworkers and managers would agree with the same statement. Because we posed the same question to both managers and non-managers, we are able to calculate the extent to which employees over- or underestimate their colleagues' and supervisors' actual views. This information formed the basis of the information provision intervention, which was implemented in the first follow-up survey.

A key feature of our design is that participants share common networks and cultural practices within their organizations. Our survey explicitly elicited the social norms of their own colleagues and managers, rather than those of society at large. Likewise, in the information provision treatment, we emphasized that the norms presented were based on survey responses from their managers and colleagues in the same organization. This focus is important because many Japanese men are particularly concerned about sanctions for deviating from norms in their immediate workplace.

The intervention was implemented only among non-managers. We used stratified randomization at the organization level, ensuring that employees from the same organization were always placed within the same stratum. Within each stratum, we randomly assigned half of the non-managers to the treatment group and half to the control group. Treated non-managers were presented with two charts illustrating the discrepancy between their second-order beliefs and the actual responses of managers. The first chart showed the distribution of non-managers' beliefs about whether their managers agreed with the statement, while the second chart displayed the actual responses of managers. On the following page, they were shown analogous charts correcting their beliefs about colleagues' attitudes. Non-managers in the control group were shown no such information. Appendix D.3 reproduces the screen presented to the treatment group.

3.3 Data Collection

3.3.1 Timing of Surveys

Our experiment consisted of a baseline survey, a training intervention, and two follow-up surveys. The information provision intervention was embedded within the first follow-up

survey, while the training program was implemented between the surveys. Specifically, the treatment group received the training between the baseline and the first follow-up surveys, and the control group received it between the first and the second follow-up surveys. Figure 1 summarizes the overall timeline. This staggered design allows us to estimate the short-term effects of the training program and to assess complementarities between the training and the information provision interventions.

We allowed sufficient time between the surveys and interventions to capture potential behavioral and workplace changes. Approximately two months after the baseline survey, the training was delivered to the treatment group. The first follow-up survey was fielded one to two months later. The control group received the training about one to three months after that, followed by the second follow-up survey within three weeks. All surveys and interventions took place between August 2023 and March 2024.

The baseline and first follow-up surveys constitute our main analysis sample. Both surveys collected information on workplace environments (for example, psychological safety) and behavioral outcomes (for example, household time allocation), as well as measures of personal norms and perceptions of colleagues' and managers' norms. The baseline survey also gathered demographic characteristics, while the second follow-up survey provided supplementary data, including the social desirability scale.

Survey links were distributed to all employees who had signed up for the training program (N = 1,962). Response rates were 90.3 percent for the baseline survey (N = 1,771, of whom 1,444 were male), 75.6 percent for the first follow-up survey (N = 1,483, of whom 1,225 were male), and 55.0 percent for the second follow-up survey (N = 1,080, of whom 889 were male).[10] Appendix C.1 shows that branch-level response rates were not significantly correlated with treatment assignment.

Our main analytic sample consists of male employees who completed both the baseline and first follow-up surveys and provided essential demographic and treatment information, including age, marital status, managerial status, parental status, and training assignment. This restriction yields 1,225 employees across 74 branch offices.[11]

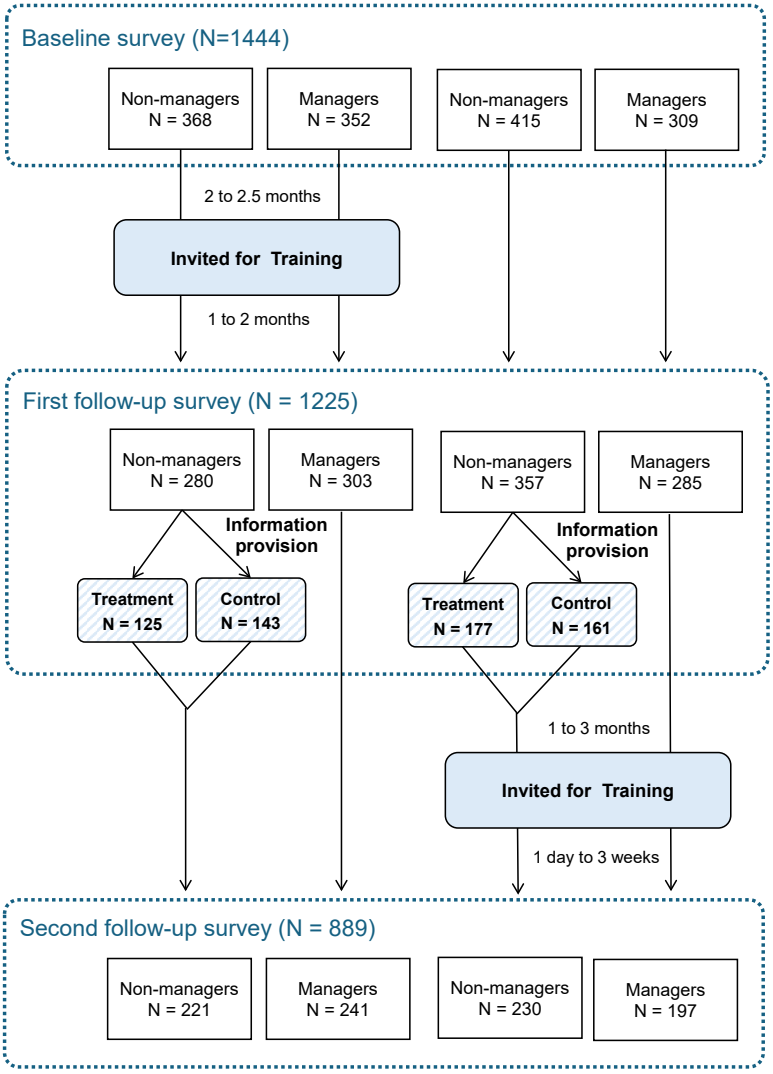
3.3.2 Addressing Desirability Bias

To minimize the risk that participants responded in ways consistent with perceived organizational or researcher expectations, we established strict procedures to ensure anonymity and independence. Human resources divisions had no access to survey data, and researchers had no access to employees' identities. The managing NPO linked training participation records with survey responses and ensured that all personally identifiable information remained confidential. This arrangement was explained clearly at the begin-

[10] All respondents who completed a follow-up survey also completed the baseline survey.

[11] In six branch offices, no male employee responded to the first follow-up survey.

Figure 1: Timing of surveys and interventions



Note: The sample size reported in this figure reflects the number of male respondents with valid entries for the key variables in each survey wave. These variables include age, marital status, managerial status, presence of at least one child, and assignment to the training intervention. Because only employees on tenured contracts were eligible to participate in the information-provision experiment in the first follow-up survey, the counts of treated and untreated non-managers do not sum to the full non-manager sample.

ning of each survey.[12] To prevent any conflict of interest or experimenter demand effects, we also separated responsibilities: the training seminars were delivered by an external nonprofit organization, the managing NPO coordinated data collection, and all analyses were conducted independently by researchers.

Beyond procedural safeguards, we assessed whether participants' responses might have been influenced by a general tendency to give socially desirable answers. Individuals with high social desirability concerns may report attitudes or behaviors that appear more consistent with social norms or with the perceived objectives of the training, potentially biasing treatment effect estimates. To capture this tendency, we administered a Japanese adaptation of the Social Desirability Scale (SDS) developed by Kitamura and Suzuki (1986), based on the original Crowne and Marlowe (1960) instrument. This version was carefully refined to reflect culturally accepted but uncommon behaviors in Japan and to exclude items related to mental health symptoms, ensuring it measured the inclination to present oneself favorably rather than psychological well-being.[13]

The SDS was included in the second follow-up survey and consisted of ten dichotomous ("Yes" or "No") questions. Following Kitamura and Suzuki (1986), we calculated an overall score by summing the number of socially desirable responses, with higher scores indicating a stronger tendency toward socially desirable reporting. Appendix Table B.1 lists the ten items used.

To assess whether individuals with stronger social desirability tendencies responded differently to the training, we examined heterogeneity in treatment effects by the level of SDS. Specifically, we estimated models including an interaction between the treatment indicator and a "High SDS" dummy equal to one for respondents scoring above the median. This test evaluates whether participants more inclined to give socially desirable answers reported systematically more favorable outcomes after the intervention. The interaction term is small and statistically insignificant across all outcomes, indicating that the treatment effects are not driven by respondents attempting to present themselves in a socially desirable way. The detailed results are presented in Appendix Section B.1.

3.4 Econometric Specification

We estimate the causal effects of the training and information provision interventions on participants' attitudes and behaviors. We adopt different estimands for each intervention, reflecting their distinct implementation structures.

For both interventions, we employ an analysis of covariance (ANCOVA) specification, in which control variables include baseline outcomes to enhance statistical precision and

[12] Appendix D.2 presents the informed consent form.

[13] Items were excluded if they showed systematic differences between individuals with and without mental disorders, if they applied only to adults, or if their mean responses differed substantially between adult and adolescent samples.

comparability across estimations (McKenzie, 2012). Both interventions are evaluated using outcomes measured in the same baseline and first follow-up surveys, which allows for a unified empirical framework when comparing their relative impacts on attitudes and behaviors.

Training Intervention

For the training intervention, we take the local average treatment effect (LATE) as our primary estimand. Our interest lies in the efficacy of the training program itself rather than the effect of being invited to participate. In scaling such interventions, participation is a key determinant of overall impact, but firms can influence participation through incentives or mandates. The LATE therefore provides a more policy-relevant measure of the program's effectiveness. In the appendix, we provide estimates for Intention-to-treat (ITT) for reference.

We estimate the following model using two-stage least squares (2SLS), instrumenting actual participation with training assignment at the office level. The first stage is:

$$TrainingParticipation_{ij} = \pi\, Training_j + \gamma' X_{ij} + u_{ij}, \tag{1}$$

where $TrainingParticipation_{ij}$ is an indicator for whether individual i in office j participated in the training, and $Training_j$ equals one if the office was assigned to the early training group.

The second stage is:

$$Y_{ij} = \beta\, \widehat{TrainingParticipation}_{ij} + \theta' X_{ij} + \epsilon_{ij}, \tag{2}$$

where Y_{ij} denotes the outcome of interest measured in the first follow-up survey, and $\widehat{TrainingParticipation}_{ij}$ is the predicted value from the first stage.

The vector X_{ij} includes the baseline value of the outcome variable, randomization-strata fixed effects, and additional controls selected using the post-double-selection (PDS) LASSO procedure (Belloni et al., 2014). The candidate control set consists of age, age squared, managerial status, marital status, parental status, information provision treatment status, and all interactions among these variables.[14] Standard errors are clustered at the office level. Among men in offices assigned to the early training group, 49 percent participated in the training before the first follow-up survey.

[14] We confirm that including additional outcome variables (such as beliefs and working hours) measured the baseline survey in the LASSO control set does not change the qualitative results.

Information Provision Intervention

For the information provision component, implemented within the first follow-up survey among non-managerial employees, we estimate the average treatment effect (ATE). Because all targeted employees were exposed to the information during the survey, treatment compliance is effectively universal. However, to the extent that some respondents may not have fully attended to the information, the estimated coefficient can also be interpreted as an ITT effect.

We estimate:

$$Y_{ij} = \beta_1 \, Information_{ij} + \theta' X_{ij} + \epsilon_{ij}, \tag{3}$$

where $Information_{ij}$ equals one if respondent i in office j received the information treatment. The vector X_{ij} includes the same set of control variables as in equation 2. The candidate control set for PDS LASSO comprises age, age squared, managerial status, marital status, parental status, training invitation status, and all interactions among these variables.

Because the information intervention was implemented within the survey, we focus on its immediate effects on beliefs about men's paternity leave take-up and on intentions to take paternity leave or have another child.

4 Descriptive Statistics

4.1 Evidence for Pluralistic Ignorance

We begin by defining how we measure individual own beliefs and second-order beliefs about coworkers' and managers' attitudes regarding men's paternity leave. The concept of pluralistic ignorance refers to a situation in which individuals misjudge the prevailing social norms or attitudes of others, even when most people privately hold similar views. In our context, employees may personally support men's paternity leave but underestimate how supportive their coworkers or supervisors actually are. This misalignment between perceived and actual attitudes provides direct evidence of pluralistic ignorance in the workplace.

We construct two sets of measures from our baseline survey. The first captures respondents' own beliefs about paternity leave. Each respondent indicated, on a six-point scale, the extent to which they personally agree with the following two statements:

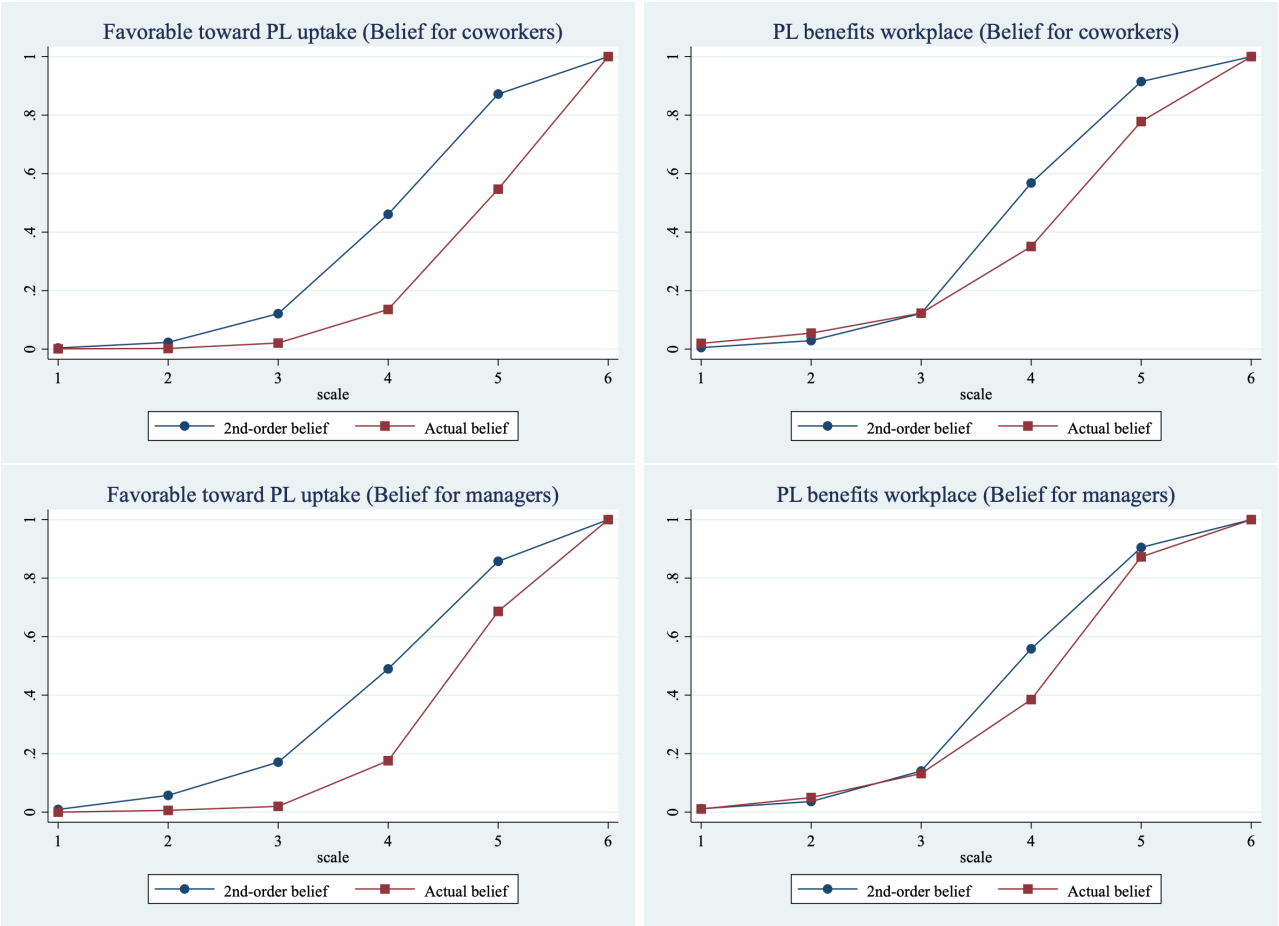
How much do you *personally* agree with the following statements?

(1) *It is a good thing for men to take leave for childcare and caregiving.*" (hereafter Favorable toward PL uptake")

(2) *Increasing take-ups of men's paternity leave can improve company operations and promote a collaborative workplace culture.*" (hereafter PL benefits the workplace")

Second, we use survey questions that ask each respondent how much they think their coworkers and managers *would* agree with the same two statements above. These responses represent second-order beliefs about coworkers' and managers' attitudes.

Figure 2: Cumulative Distribution: Evidence for pluralistic ignorance in baseline survey



Notes. This figure compares cumulative distributions of 2nd-order beliefs and corresponding actual beliefs of coworkers and managers, both measured in the baseline survey. In panels showing "Beliefs for coworkers", the cumulative distribution of actual beliefs is calculated using the sample of male non-managers. In panels showing "Beliefs for managers", the cumulative distribution of actual beliefs is calculated using the sample of male managers. In all panels, the cumulative distributions of 2nd-order beliefs are calculated using all male sample.

Figure 2 presents the cumulative distributions of second-order beliefs about coworkers' (or managers') attitudes, alongside the cumulative distributions of own beliefs of non-managers (or managers) regarding the same statements. These beliefs are measured in the baseline survey. The cumulative distribution of own beliefs first-order stochastically dominates that of second-order beliefs, indicating that respondents are overly pessimistic about how supportive their coworkers and managers are toward men's paternity leave. This pattern holds across both belief statements and for both managers and coworkers.

The magnitude of the gap in beliefs is larger for the statement "Favorable toward PL uptake" than for "PL benefits the workplace." Thus, employees underestimate others'

approval of paternity-leave uptake more strongly than they underestimate others' belief in its workplace benefits. The gaps in beliefs are broadly balanced between managers and coworkers, implying that misperceptions are not systematically biased toward one reference group.

Overall, the descriptive evidence clearly demonstrates pluralistic ignorance at baseline: employees personally support men's paternity leave but believe that their peers and supervisors are substantially less supportive than they actually are.

4.2 Balance Check

Before turning to the estimation results, we examine whether baseline characteristics are balanced between the treatment and control groups. Tables 1 and 2 present descriptive statistics for the training and information interventions, respectively. All variables are measured at baseline prior to the interventions. The tables report means for the control and treatment groups, the difference between the two (after controlling for the same strata fixed effects as in the main empirical specification), and standard errors in parentheses.

For the training intervention (Table 1), randomization was conducted at the office level within organizational strata. The treatment and control groups are broadly similar in observable characteristics. Mean age, marital status, parental status, weekly working hours, and own and second order beliefs are nearly identical across groups. The share of managers is somewhat higher in the treatment group (0.520 vs. 0.444, $p < 0.05$), and weekday childcare hours are modestly longer among treated employees (1.54 vs. 1.31 hours, $p < 0.10$). These small differences are consistent with random variation and will be accounted for in the estimation stage by controlling for baseline covariates. We also note that, among non-managers, the training treatment group has a slightly lower probability of receiving information provision (0.462 vs. 0.520, $p<0.10$). We account for the potential impact of this imbalance in our estimation by including information provision status in the candidate control set for PDS LASSO. Overall, the stratified randomization achieved balance in demographic and job-related characteristics.

For the information provision intervention (Table 2), randomization was conducted at the individual level within each organization. The treatment and control groups are again well balanced. Mean age, marital and parental status, and other baseline measures are very similar across groups. Two small differences are worth noting. The treatment group shows a slightly higher baseline intention to take paternity leave (0.325 vs. 0.251, $p < 0.10$) and a lower probability of being invited to the training intervention (0.423 vs. 0.480, $p < 0.10$). As in the training intervention, these differences are minor and will be addressed by including baseline characteristics and training invitation status (in the candidate control set for PDS LASSO) as control variables in the outcome regressions.

The two tables together indicate that both randomization procedures produced com-

Table 1: Descriptive statistics and balance test for training intervention

	(1)	(2)	(3)	(4)
	Mean		**Difference**	No. Obs
Variable	Control	Treatment	Treatment-Control	
Age	45.488	44.175	-1.327*	1,225
	(10.453)	(9.820)	(0.083)	
Married	0.850	0.870	0.019	1,225
	(0.357)	(0.337)	(0.366)	
Manager	0.444	0.520	0.076**	1,225
	(0.497)	(0.500)	(0.043)	
Has at least one child	0.768	0.768	0.000	1,225
	(0.422)	(0.422)	(0.988)	
Own belief: Favorable toward paternity leave uptake	5.170	5.225	0.054	1,225
	(0.770)	(0.771)	(0.248)	
Own belief: Paternity leave benefits the workplace	4.565	4.530	-0.039	1,225
	(1.079)	(1.082)	(0.548)	
2nd-order belief: Managers' favorable attitudes toward PL uptake	4.445	4.432	-0.015	1,223
	(1.111)	(1.041)	(0.851)	
2nd-order belief: Coworkers' favorable attitudes toward PL uptake	4.500	4.534	0.033	1,223
	(0.958)	(0.901)	(0.660)	
2nd-order belief: Managers' belief that PL benefits workplace	4.371	4.270	-0.104	1,223
	(0.969)	(0.969)	(0.208)	
2nd-order belief: Coworkers' belief that PL benefits workplace	4.375	4.284	-0.093	1,221
	(0.893)	(0.902)	(0.120)	
Weekly working hours	44.801	45.430	0.608	1,208
	(15.319)	(13.566)	(0.495)	
Daily childcare hours (weekday)	1.308	1.537	0.238*	910
	(1.567)	(1.696)	(0.050)	
Daily childcare hours (weekend)	6.333	6.727	0.398	910
	(6.007)	(5.746)	(0.339)	
Daily housework hours (weekday)	0.945	0.878	-0.063	1,196
	(1.256)	(0.943)	(0.214)	
Daily housework hours (weekend)	2.117	1.965	-0.151	1,196
	(2.289)	(1.898)	(0.275)	
Spouse's weekly working hours	21.542	21.898	0.388	1,033
	(18.075)	(17.289)	(0.706)	
Spouse's daily childcare hours (weekday)	4.888	5.255	0.354	881
	(4.691)	(4.628)	(0.314)	
Spouse's daily childcare hours (weekend)	7.736	7.987	0.247	881
	(6.008)	(5.779)	(0.462)	
Spouse's daily housework hours (weekday)	4.202	3.989	-0.221	1,020
	(3.746)	(3.231)	(0.398)	
Spouse's daily housework hours (weekend)	4.169	3.895	-0.282	1,020
	(3.625)	(3.013)	(0.230)	
Researched about PL	0.184	0.174	-0.011	1,222
	(0.388)	(0.379)	(0.686)	
Intention to take paternity leave	0.184	0.183	-0.001	1,184
	(0.387)	(0.387)	(0.984)	
Received information treatment	0.520	0.462	-0.056*	589
	(0.500)	(0.500)	(0.099)	

Notes. All variables are measured in the baseline survey. Columns (1) and (2) report the mean and standard deviation (in parentheses) by training treatment assignment. Column (3) reports the difference between treatment and control groups estimated from a regression of each variable on a treatment indicator, controlling for randomization-strata fixed effects. Standard errors (in parentheses) are clustered at the randomization-unit level.

Table 2: Descriptive statistics and balance test for information intervention

	(1)	(2)	(3)	(4)
	Mean		**Difference**	No. Obs
Variable	Control	Treatment	Treatment-Control	
Age	41.473	40.076	-1.286	589
	(11.581)	(10.901)	(0.259)	
Married	0.812	0.770	-0.042	589
	(0.391)	(0.422)	(0.144)	
Has at least one child	0.691	0.653	-0.040	589
	(0.463)	(0.477)	(0.196)	
Own belief: Favorable toward paternity leave uptake	5.272	5.306	0.032	589
	(0.814)	(0.728)	(0.641)	
Own belief: Paternity leave benefits the workplace	4.594	4.512	-0.088	589
	(1.079)	(1.224)	(0.344)	
2nd-order belief: Coworkers' favorable attitudes toward PL uptake	4.529	4.632	0.091	588
	(0.926)	(1.027)	(0.274)	
2nd-order belief: Managers' favorable attitudes toward PL uptake	4.487	4.414	-0.092	588
	(1.083)	(1.156)	(0.318)	
2nd-order belief: Coworkers' belief that PL benefits workplace	4.331	4.334	-0.006	586
	(0.851)	(1.013)	(0.942)	
2nd-order belief: Managers' belief that PL benefits workplace	4.293	4.275	-0.031	588
	(0.965)	(1.044)	(0.680)	
Researched about PL	0.161	0.200	0.038	588
	(0.368)	(0.401)	(0.139)	
Intention to take paternity leave	0.251	0.325	0.074*	570
	(0.434)	(0.469)	(0.079)	
Assigned to training intervention	0.480	0.423	-0.055*	589
	(0.500)	(0.495)	(0.093)	

Notes. All variables are measured in the baseline survey. Columns (1) and (2) report the mean and standard deviation (in parentheses) by information treatment assignment. Column (3) reports the difference between treatment and control groups estimated from a regression of each variable on a treatment indicator, controlling for firm group fixed effects. Standard errors (in parentheses) are clustered at the level of branch offices.

parable treatment and control groups. Baseline attitudes and behavioral indicators are well aligned, suggesting that subsequent differences in outcomes reflect the causal effects of the interventions rather than pre-existing differences.

5 Results

This section presents the effects of the two interventions on employees' beliefs, attitudes, and behaviors. Section 5.1 reports the results for the training intervention, and Section 5.2 reports those for the information-provision intervention.

5.1 Effects of Training Intervention

We first analyze changes in attitudes and perceptions of workplace norms, as belief shifts are a first step toward behavioral change. We then assess effects on time use and engagement with paternity leave policies, shedding light on how workplace training can promote greater paternal involvement at home.

Table 3: Effects of training on beliefs

	Favorable toward PL uptake			PL benefits workplace		
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)
Panel A: LATE						
Training	0.076	0.145	-0.108	0.447***	0.291**	0.094
	(0.057)	(0.145)	(0.114)	(0.105)	(0.143)	(0.121)
Observations	1225	1206	1218	1223	1208	1218
Control Mean	5.265	4.594	4.585	4.591	4.547	4.567
No. clusters	74	74	74	74	74	74
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Test of distribution equality (Wilcoxon rank-sum test)						
p-value	0.122	0.101	0.456	0.005	0.030	0.845
Observations	1225	1208	1220	1223	1211	1220

Notes. This table shows the effect of the training intervention on own beliefs of the male respondents and their (mis)perception about workplace norms. The coefficients are estimated using training assignment as the instrumental variable, and they represent the Local Average Treatment Effect (LATE) of training participation. In Columns (1) and (4), the dependent variable is the respondent's level of agreement with two indicated statements regarding men's uptake of paternity leave. In Columns (2)-(3) and (5)-(6), the dependent variable is the respondent's second-order belief about coworkers (Columns (2) and (5)) or managers (Columns (3) and (6)). Standard errors in parentheses are clustered at the randomization-unit level. All equations control for randomization strata fixed effects, baseline value of the outcome variable, and control variables selected by PDS LASSO.

5.1.1 Beliefs

The first set of results concerns how the training intervention affected participants' own beliefs and their perceptions of workplace norms related to paternity leave. We focus on two key statements: (1) that taking paternity leave is a good thing for men ("Favorable toward PL uptake") and (2) that such uptake can improve company operations and promote a collaborative workplace culture ("PL benefits the workplace"; see Section 4.2 for variable definitions).

Table 3 Panel A reports the estimates for LATE of training participation on these belief outcomes, using training assignment as an instrument for participation. The corresponding ITT estimates are shown in Appendix Table C.3. For own beliefs, the training increased agreement with the first statement, although the effect is not statistically significant (Column 1). In contrast, it significantly increased agreement with the second statement, "PL benefits the workplace," by 0.447 percentage points (Column 4). These results suggest that the training was particularly effective in strengthening beliefs about the workplace advantages of men's paternity leave.

Columns (2)-(3) and (5)-(6) of Table 3 Panel A present the estimated effects of the training on respondent's perceptions of coworkers' and managers' attitudes. The results show that the training reduced participants' underestimation of coworkers' support for the workplace benefits of paternity leave. The corresponding effect for managers' attitudes is also positive but not statistically significant. The pattern suggests that participants

revised their perceptions of peer norms more readily than their views about managerial norms.

Panel B of Table 3 reports the results of Wilcoxon rank-sum tests comparing the belief distributions between the training treatment and control groups. Beliefs are measured in the first follow-up survey. Appendix Figure C.2 presents the corresponding cumulative distribution functions. Consistent with the regression-based results, the p-values in columns (4) and (5) fall below 0.1, indicating statistically significant differences in beliefs between treatment and control groups about the benefits in the workplace.

The stronger response for the "PL benefits the workplace" statement is consistent with the structure and content of the training. Instructors emphasized how paternity leave can enhance workplace efficiency by improving communication, promoting shared task coverage, and encouraging broader skill development within teams. The employer-sponsored nature of the program also conveyed that the organization values male participation in childcare, reinforcing the perception that such attitudes are widely shared among peers. This likely contributed to the changes in the beliefs regarding coworkers' attitudes.

By contrast, perceptions of managers' attitudes showed only a modest change. One reason may be that managerial views are less visible and harder for employees to infer, as interactions with supervisors are less frequent and more formal than those with peers. A second possibility is that participants interpreted the training as reflecting the organization's stance rather than the personal opinions of individual managers, reducing its credibility as a signal of managerial norms. Finally, hierarchical workplace culture may have reinforced cautious assumptions about authority figures. Even when employees learn that managers on average are more supportive, they may continue to believe that their own supervisors are exceptions. Such beliefs tend to adjust slowly, making the beliefs about managers more persistent than those about peers.

Heterogeneity analysis (Appendix Table C.5) shows that the observed effects are mainly driven by participants who held relatively optimistic beliefs at baseline, while those who were initially more skeptical show little change. This pattern is consistent with motivated reasoning, whereby individuals with stronger prior skepticism discount information that conflicts with their beliefs. We also examine heterogeneity by job position (manager versus non-manager) and family status (with or without children) in Appendix Table C.6, but find no systematic differences across these subgroups.

5.1.2 Behavioral Outcomes

Having shown that the training intervention influenced participants' beliefs, particularly regarding the workplace benefits of paternity leave, we now examine whether these attitudinal changes translated into behavioral shifts. Specifically, we assess the effects of the intervention on participants' time allocation and related behaviors, as well as those of

their spouses. Table 4 reports the estimated ATE of training participation using training assignment as an instrument, and Appendix Table C.7 presents the corresponding ITT estimates.

The training had no significant effects on working hours or childcare time during weekdays (Columns (1)-(2)), but it significantly increased childcare time on weekends (Column (3)). The magnitude is substantial: participants who received the training spent about one additional hour per day on weekend childcare, a 14 percent increase relative to the baseline mean. This pattern likely reflects structural constraints on weekday schedules, as full-time employees have limited flexibility to adjust their weekday time use. Weekend hours therefore represent a more feasible margin for greater paternal involvement.

The most direct explanation for this behavioral change is the content of the training. The sessions emphasized the personal and family benefits of men's active participation in childcare, which may have motivated participants to spend more time with their children, particularly on weekends when schedules are more flexible. The intervention may also have reinforced family-oriented norms and reduced the perceived stigma of visible caregiving, making participants more comfortable engaging in childcare outside work hours.

The training also increased the share of participants who reported researching paternity leave policies by approximately 16 percentage points (Panel A, Column (6)). This suggests that the intervention not only influenced time use but also heightened interest in available institutional supports. Importantly, this effect appears among both non-managerial employees, who are more likely to use such policies themselves, and managers (Appendix Table C.10). This broader engagement implies that the training may have encouraged personal reflection as well as a sense of managerial responsibility, fostering a more supportive organizational climate for paternity leave uptake.

We now turn to the effects of the training intervention on participants' spouses. Table 4, Panel B, shows that spouses' outcomes also responded to the intervention. Column (1) indicates a statistically significant increase in spouses' working hours, with the estimated ATE corresponding to an increase of 3.5 hours per week, or about 16 percent relative to the baseline mean. Appendix Table C.11 documents that this increase is driven entirely by women who were already employed part-time: the share working 10–30 hours per week rises, while there is no detectable change at the extensive margin of employment. Thus, the intervention appears to lengthen hours among existing part-time workers rather than induce new labor-force entry.

These changes are consistent with adjustments within the household following the training. By emphasizing the benefits of fathers' active childcare participation, the program may have encouraged more balanced sharing of domestic responsibilities, allowing spouses to increase their paid work hours. Improved perceptions of workplace support for paternal caregiving could also have reduced wives' concern that their husbands' family involvement would be viewed negatively at work, making it easier for them to reallocate

Table 4: Effects of Training on Behaviors

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)	(6) Researched about PL
Panel A: Own behaviors						
Training	-0.833	-0.113	0.943**	0.022	0.040	0.155***
	(1.764)	(0.220)	(0.453)	(0.113)	(0.236)	(0.052)
Observations	1177	876	876	1161	1161	1211
No. clusters	74	72	72	74	74	74
Control Mean	43.981	1.386	5.768	1.003	2.251	0.189
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Spouse behaviors						
Training	3.578**	-0.028	0.108	-0.495	-0.084	
	(1.729)	(0.385)	(0.453)	(0.390)	(0.335)	
Observations	994	846	846	980	980	
No. clusters	74	72	72	74	74	
Control Mean	20.213	4.779	7.110	4.487	4.182	
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	

Notes. This table reports the effects of the training intervention on the behaviors of male respondents and their spouses. The coefficients are estimated using training assignment as the instrumental variable, and they represent the Average Treatment Effect (ATE) of training participation. Panels A shows the results for male respondents, and Panel B shows the results for their spouses. Standard errors in parentheses are clustered at radomization unit level. All equations control for randomization strata fixed effects, baseline value of the outcome variable, and control variables selected by PDS LASSO.

time toward employment.

The rise in spouses' paid work hours was accompanied by a decline in their time spent on housework. While the effects on childcare and total housework time are not statistically significant (Columns (2)-(5)), weekday housework hours declined by about 12 percent relative to the baseline mean (Panel B, Column (4)). The total weekly reduction amounts to roughly 2.6 hours (Panel B, Columns (4)-(5)), closely matching the increase in working hours and suggesting a direct reallocation of time from unpaid to paid work. These patterns imply that even a brief workplace intervention targeting male employees can alter intra-household labor division by shifting norms and expectations about fathers' roles at home and at work.

5.1.3 Heterogeneity of Effects on Behavior by Age of Child

Given that the training emphasized paternal engagement with young children, we examine whether its effects vary by the presence and age of children in the household. Table 5 reports ATE estimates separately for three groups: (1) households with at least one young child (aged five or below), (2) those with only older children (aged six or above),

and (3) households without children. The corresponding ITT estimates are presented in Appendix Table C.12.

Among households with a young child, the training significantly increased fathers' weekend childcare time (Panel A, Column (3)). Working hours slightly declined in this group, but the change is not statistically significant. The lack of a stronger reduction in work hours likely reflects structural constraints. Even if workplace attitudes toward paternal involvement improved, full-time employees have limited discretion over daily schedules and workload distribution. It is also possible that fathers chose to increase childcare during weekends as the most feasible margin of adjustment in the short run.

Spouses in this group also increased their labor supply and reduced their time spent on housework. Specifically, working hours rose while weekday and weekend housework hours declined (Panel B, Columns (1), (4), and (5)). These shifts indicate a reallocation of time within the household that enabled greater maternal labor market participation without reducing overall childcare provision.

The increase in fathers' childcare time did not come at the expense of mothers' involvement. As shown in Appendix Table C.14, total childcare time in the couple increased, while total housework time declined. This net reduction in unpaid work may reflect behavioral adjustments such as outsourcing household tasks (for example, purchasing prepared meals) or lowering standards for domestic chores. Although our data do not directly capture such mechanisms, nearly 30 percent of male participants reported discussing household responsibilities with family members within three days of the training, and 37 percent reported engaging in housework or childcare during that period (Appendix Figure C.1). These responses suggest that the intervention prompted concrete short-term action and household-level coordination.

For households with only older children, the training had no detectable effects on working hours or childcare time, but it led to a statistically significant increase in men's housework time. Effects on their spouses were mixed, with a slight increase in weekend housework. Among participants without children, the training increased weekday housework time. One possible explanation is that these individuals began adjusting household routines in anticipation of future childcare responsibilities.

Lastly, because our behavior measures are based on self-reported survey responses, there is a potential concern of misreporting, which may itself be influenced by the training. If the intervention merely induced socially desirable reporting, we would expect increases in both weekday and weekend childcare time, as well as reports that fathers' increased childcare freed up their spouses' time. Our results are inconsistent with this pattern. Weekend childcare increased, but weekday childcare did not, and the rise in spouses' working hours corresponds closely to reductions in their own housework rather than to shifts in fathers' childcare. In Section 6.1, we address this concern more directly using additional data on respondents' propensity to give socially desirable responses and show

that the main results are not driven by such tendencies.

5.1.4 Intention to take paternity leave

We briefly summarize the effects of the training intervention on employees' stated intentions to take paternity leave, with full details reported in the appendix A. On average, the intervention did not raise overall leave intentions, in part because many participants are in their forties and do not expect to have additional children. When we split the sample by age, estimates for younger men remain small and statistically insignificant, while some older respondents appear to revise their expectations about future parenting. Appendix results show that the training shifted the distribution of detailed response categories in two notable ways: it increased reports that childrearing is complete or that no further children are expected, and it decreased the share selecting "I will not take paternity leave even if I have a new child." This pattern suggests that the program altered how employees reason about future leave-taking, even when it did not raise the binary indicator for intending to take leave.

Workplace conditions also moderate the effect of the intervention. Respondents who report having more coworkers available to cover their tasks exhibit modest increases in leave intentions, whereas those facing tighter staffing constraints do not. These findings indicate that while the training can soften resistance to paternity leave and reshape how employees think about its feasibility, attitudinal change is unlikely to translate into stronger stated intentions without sufficient organizational support. A full discussion of age heterogeneity, workplace context, and the underlying response patterns appears in the appendix A.

5.1.5 Workplace management and worker relationships

The results above indicate that the training intervention affected participants' attitudes and household behaviors. To assess whether it also influenced broader workplace dynamics, we examine outcomes related to management practices and interpersonal relationships.

Appendix Table C.15 reports results for measures of workplace management, including the number of coworkers available to take over the respondent's tasks, time spent in meetings, and days worked from home. Appendix Table C.16 presents results for relationship indicators such as communication about personal matters, perceived psychological safety, relationships among coworkers, and willingness to recommend the firm to a job seeker.[15] Across all measures, the estimated effects are small and statistically insignificant.

Overall, the training did not produce detectable changes in workplace structures or relationships within the observation period. The intervention appears to have influenced

[15]See Appendix D for variable descriptions.

Table 5: Heterogeneous Effects of Training on Behaviors by Presence and Age of Children

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)
Panel A: Own hours					
Training × Young children	-3.958	-0.721	2.286***	-0.290	-0.875
	(2.670)	(0.501)	(0.860)	(0.233)	(0.757)
Training × Only older children	-0.166	0.248	0.224	0.386**	0.442
	(2.705)	(0.230)	(0.558)	(0.155)	(0.289)
Training × No children	2.308			0.182	0.711**
	(7.735)			(0.272)	(0.296)
Observations	1015	876	876	1001	1001
No. clusters	74	72	72	74	74
Baseline Mean	45.591	1.443	6.638	0.880	2.041
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes
Panel B: Spouse hours					
Training × Young children	4.353*	0.310	-0.451	-1.334*	-2.061**
	(2.475)	(0.864)	(1.186)	(0.719)	(0.906)
Training × Only older children	1.789	0.204	0.440	-0.329	0.631*
	(2.068)	(0.478)	(0.762)	(0.464)	(0.338)
Training × No children	12.39			0.644	1.615
	(8.397)			(1.330)	(1.386)
Observations	994	846	846	980	980
No. clusters	74	72	72	74	74
Baseline Mean	21.757	5.101	7.915	4.090	4.018
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes

Notes. This table uses the sample of men who were married at the time of the baseline survey. We estimate heterogeneity in the Average Treatment Effect (ATE) by interacting training participation with indicator variables for the presence and age group of children and using training assignment with the same indicator variables as instrumental variables. "Young children", "Only older children", and "No children" are indicator variables equal to 1 if the household has at least one young child (aged 5 or below), only older children (aged 6 or above), or no children, respectively. Standard errors in parentheses are clustered at radomization unit level. All equations control for randomization strata fixed effects, baseline value of the outcome variable, and control variables selected by PDS LASSO.

personal attitudes and household behaviors more readily than organizational dynamics, which likely require longer exposure or additional institutional initiatives to shift.

5.2 Effects of Information Intervention

We now examine the effects of the information provision intervention, which aimed to correct participants' misperceptions about coworkers' and managers' attitudes toward men taking paternity leave. As described in Section 3.4, this intervention targeted non-managerial employees and was implemented during the first follow-up survey. Participants in the treatment group were shown aggregate data on their colleagues' and supervisors' actual responses to the statement "It is good for men to take leave for childcare or caregiving," allowing us to test whether correcting second-order beliefs could shift attitudes or intentions.

Because the information was delivered and outcomes were measured within the same survey wave, the analysis captures short-run effects. Table 6 summarizes the results. Panel A reports the average treatment effect of the information treatment, and Panel B shows the results of Wilcoxon rank-sum tests comparing the belief distributions between the treatment and control groups. Columns (2) and (3) show that the intervention significantly increased the second order beliefs about coworkers and managers. The rank-sum tests likewise indicate differences in the belief distributions between the treatment and control groups (see corresponding cumulative distributions in Appendix Figure C.3). This confirms that the intervention effectively addressed pluralistic ignorance, as participants initially underestimated how positively others viewed men's paternity leave.

Despite correcting these misperceptions, the intervention produced only limited downstream changes. The information provided referred exclusively to the first statement, "It is good for men to take leave for childcare or caregiving," and did not include any content related to the second statement, "Men's paternity leave take-ups benefit the workplace." As shown in Column (1), participants' own beliefs about the first statement did not significantly increase, although the point estimate is positive. We also find little change in beliefs related to the second statement, as reported in Columns (4) through (6).

Overall, these results indicate that while correcting second-order beliefs can successfully reduce misperceptions, its influence on related attitudes and beliefs remains limited when the information targets a single issue and lacks interactive discussion or reflection.

The intervention also had no significant impact on participants' stated intention to take paternity leave in the future (Column (7)) among men aged 50 or younger. This null effect likely reflects both the low relevance of the question for older respondents, many of whom did not expect to have another child, and the fact that information alone cannot overcome structural or psychological barriers to leave-taking.

Column (8) further shows no significant change in participants' likelihood of seeking

information about paternity leave after receiving the intervention. This result contrasts with the positive and significant effect observed for the training intervention. The difference between the two interventions highlights the limitation of information provision alone. While providing accurate data corrected misperceptions about workplace norms, it did not stimulate proactive engagement or behavioral follow-up. The training, in contrast, combined factual information with attitudinal reinforcement and motivational framing, which likely encouraged participants to act on what they learned.

Taken together, these findings show that accurate information about workplace norms can reduce misperceptions in the short run but has limited influence on personal beliefs, intentions, or behavior. Compared with the training intervention, the information provision was narrower in scope and effect, underscoring the importance of combining factual correction with attitudinal reinforcement and organizational engagement when seeking to change behavior in the workplace.

Finally, we assess whether the information provision complemented the training intervention by including both treatment indicators and their interaction in a joint specification. Results reported in Appendix Table C.19 show that the interaction terms are small and statistically insignificant, indicating that the two interventions operated independently. Correcting misperceptions about workplace norms neither amplified nor substituted for the more immersive effects of training.

Table 6: Effects of information intervention

	Favorable toward PL uptake			PL benefits workplace			Intention to take PL	Researched about PL
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)	(7)	(8)
Panel A: ATE								
Information	0.044	0.111*	0.147**	-0.007	0.036	0.099	-0.007	-0.026
	(0.046)	(0.058)	(0.073)	(0.077)	(0.065)	(0.061)	(0.031)	(0.035)
Observations	589	579	587	588	579	587	425	582
Control Mean	5.339	4.599	4.517	4.678	4.602	4.498	0.295	0.220
No. clusters	65	65	65	65	65	65	57	65
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Test of distribution equality (Wilcoxon rank-sum test)								
p-value	0.194	0.014	0.072	0.985	0.318	0.101		
Observations	589	580	588	588	581	588		

Notes. This table shows the effect of the information intervention among non-managerial employees. "2nd-order belief" is the respondent's second-order belief about either coworkers or managers' agreement to the indicated statement, respectively. "1st-order belief (Own belief)" is the respondent's agreement with two indicated statements. In Column (7), we focus on the sample of respondents who are aged 50 or younger and did not indicate "I have finished raising children, or do not expect to engage in childcare" in the baseline survey. In Column (8), the dependent variable is an indicator for whether the respondent researched paternity leave policies, measured in the second follow-up survey. Standard errors in parentheses are clustered at the level of branch offices. All equations control for firm group fixed effects, baseline value of the outcome variable, and control variables selected by PDS LASSO.

6 Robustness checks

6.1 Social Desirability Bias

Because our data are based on self-reported beliefs and behaviors, a natural concern is that respondents may have tailored their answers to align with what they perceived as socially or organizationally desirable. This concern is particularly relevant in our setting, since both interventions explicitly addressed workplace norms and may have signaled what kinds of responses were expected. We assess the potential influence of social desirability bias using two complementary strategies.

First, the survey procedures were designed to minimize incentives for strategic or image-conscious responding. The informed consent form (Appendix D.2) explained that the study was conducted independently by the University of Tokyo and the partner non-profit organization, and that individual responses would remain fully confidential. It explicitly stated that survey data would not be shared with supervisors or used in personnel evaluations, and all answers were submitted directly to the research team. Participants were also reminded that only anonymized, aggregated results would be provided to the company, and they were encouraged to answer candidly.

Second, the second follow-up survey included a standard ten-item Social Desirability Scale (SDS) to measure each respondent's tendency to present themselves favorably (see Appendix Table B.1). We constructed a Social Desirability Score by summing the number of socially desirable responses and defined a binary indicator, High SDS, equal to one if the score exceeds the sample median. We then re-estimated the main specifications including the treatment indicator, the High SDS indicator, and their interaction. In this specification, the treatment coefficient represents the effect among low-SDS individuals, and the interaction term captures any differential response among high-SDS individuals.

The results, presented in Appendix Tables B.2 and B.3, show no evidence that our findings are driven by socially desirable responding. The interaction terms are small and mostly insignificant, and the estimated treatment effects remain close to the main results. Appendix Table B.4 further shows that the behavioral effects of the training intervention, such as increases in weekend childcare time, greater interest in paternity leave information, and longer spousal working hours, remain similar in magnitude, although with somewhat larger standard errors. These results indicate that social desirability bias does not account for the observed patterns in beliefs or behaviors.

6.2 Heterogeneity of Treatment Effects by Program Sign-up Rates

The overall sign-up rate for the training program was 12 percent across participating organizations. This figure by itself is difficult to interpret without comparable benchmarks, but it does not affect the internal validity of our estimates. Because treatment assignment

was randomized, unbiased estimation of causal effects is ensured as long as randomization was properly implemented. Rather, the main implication of selective sign-up concerns external validity, since those who chose to participate may differ from non-participants in ways that influence how they respond to the intervention.

Participation rates varied substantially across organizations, ranging from 4 percent to 44 percent. This variation likely reflects differences in each firm's engagement with paternity leave policies and the degree of encouragement from human resource departments. In some organizations, their human resource department actively promoted participation, while in others the program was introduced with minimal internal communication. Participation was voluntary, and no monetary incentives were offered, as partner firms considered financial rewards inconsistent with their internal norms.

To verify the integrity of randomization, we first confirm that branch- or office-level sign-up and survey response rates are not systematically associated with training assignment status (Appendix Table C.1). We then assess the robustness of our main results by replicating key analyses using data from the organization with the highest sign-up rate (44 percent). Results from this subsample, reported in Appendix Tables B.5, B.6, and B.7, are similar in magnitude to the baseline estimates, although the smaller sample size reduces statistical precision. Overall, these results suggest that our main findings are not driven by variation in program participation rates across organizations.

7 Conclusion

This study provides experimental evidence that workplace interventions can promote paternal involvement in childcare even where formal family policies are already well developed. Using a randomized controlled trial across four Japanese organizations, we show that a relatively low-cost training program for employees and managers, compared with large-scale organizational reforms or monetary incentives, increased fathers' weekend childcare time and led their spouses to work longer hours. In contrast, an information intervention that corrected misperceptions about colleagues' attitudes improved perceptions but did not lead to observable behavioral change. These results indicate that formal policies alone are insufficient to alter behavior and that cultural change within workplaces is crucial for achieving greater gender equality in unpaid work.

The findings have several implications for the design of work-family policies. First, interventions that target workplace norms can complement traditional policy tools such as statutory leave entitlements and financial incentives. Legal rights and monetary supports are necessary, but they are often insufficient when workplace culture discourages men from using them. Training sessions that feature instructors who are themselves working fathers can help shift these norms by offering relatable examples of how to combine work and childcare. When managers also participate and visibly support the program,

they reinforce the message that paternal involvement is accepted and encouraged within the organization. Governments and firms could therefore develop standardized training modules that combine such practical guidance with managerial endorsement to address cultural barriers more effectively.

Second, the increase in spouses' working hours points to a substantive externality. Firms that host such interventions may benefit from improved employee satisfaction or retention, while additional gains may arise outside the firm. When fathers spend more time on childcare, their spouses are able to extend their working hours, which contributes to higher overall labor supply and household income. Because individual firms do not necessarily internalize these broader benefits, they may underinvest in programs that promote cultural change. Public subsidies or tax incentives could therefore be justified to encourage the adoption of such interventions, which yield social returns in the form of greater gender equity, fertility stabilization, and more efficient use of labor.

Third, although the information intervention did not produce detectable behavioral changes, its low cost and scalability suggest that it could still contribute to broader efforts to shift workplace culture. Providing accurate information alone may not be sufficient to alter behavior, but combining it with light-touch elements such as reflection exercises or messages from senior leadership could increase its effectiveness without greatly raising costs. Future studies could explore how such combinations enhance engagement and identify cost-effective ways to foster cultural change at scale.

This study has several limitations. The outcome measures are self-reported and observed over a relatively short period, so we cannot assess longer-term organizational or career effects. Nevertheless, the consistency of the findings across attitudinal and behavioral outcomes increases confidence in their validity. Future research should examine the durability of these effects and explore their implications for firm performance, employee retention, and gender equality in career advancement. It would also be valuable to test whether similar interventions are effective in other institutional settings and labor markets, where social norms and organizational structures may differ.

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A Effects of Training on Intent to Take Paternity Leave

In this section, we examine whether the training intervention influenced participants' intentions to take paternity leave in the future. In both the baseline and follow-up surveys, respondents were asked, "Do you plan or hope to take paternity leave in the future?"[16] The outcome variable equals one if the respondent reports an intention or plan to take paternity leave, or is currently doing so. Because this question is conditional on expecting to have (another) child, changes in fertility expectations can also affect the outcome.

The analysis focuses on men aged 50 or younger, who are more likely to be within reproductive age. Consistent with this restriction, Figure A.1 shows that the average intent to take paternity leave is close to zero among older respondents.

Table A.1 reports the estimated LATE (see Table A.2 for ITT estimates). Column (1) shows no significant average effect of the training on reported intentions. A likely explanation is sample composition: many participants are in their forties and may not expect to have additional children. Column (2) explores this by interacting the training variable with a binary indicator for age above or below the sample median (40). Among younger respondents, the estimated effect remains small and statistically insignificant, while among older respondents it becomes negative and significant.

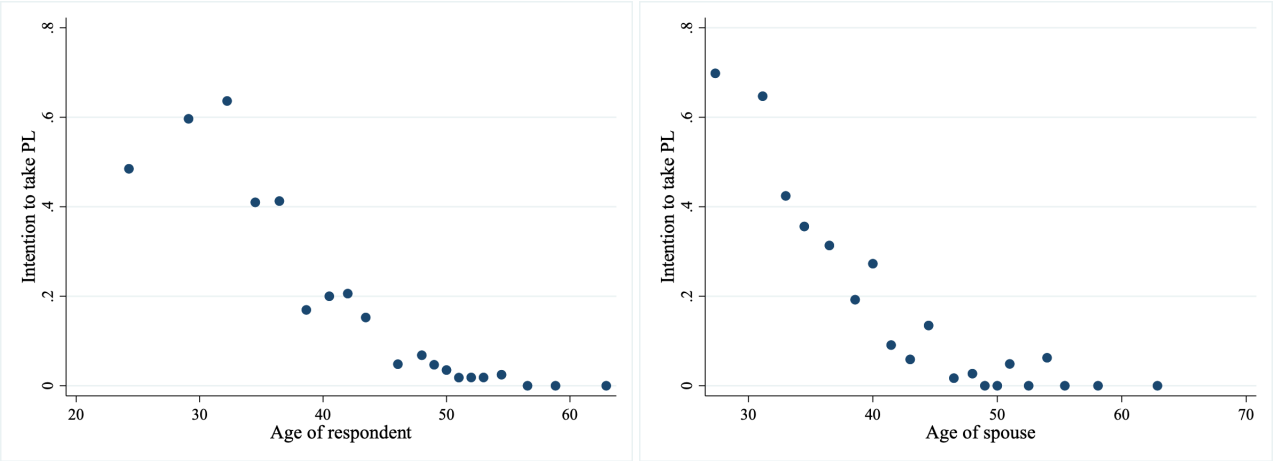
This pattern suggests that the training may have led some older participants to reevaluate their parenting plans. One interpretation is that the program's emphasis on active paternal involvement made the time commitment and effort required for childcare more salient. Older men, particularly those in senior positions, may have perceived these demands as difficult to reconcile with their current career stage or personal circumstances. Consistent with this interpretation, Table A.3 shows that the training increased the share of participants selecting the response "I have finished raising children, do not plan to have or raise children, or am currently raising children but do not plan to take paternity leave in the future." At the same time, it reduced the share choosing "I do not plan to take paternity leave, even if I have a (new) child in the future," suggesting that the intervention reshaped how participants reasoned about leave-taking rather than reinforcing outright opposition.

Workplace context also appears to moderate the effects of the training. Column (3) of Table A.1 stratifies respondents by the number of coworkers available to cover their tasks. The estimates show a divergence: the intervention increased leave intentions among those with more potential substitutes, while the negative effect among older participants persisted among those with fewer. This pattern indicates that even when attitudes toward paternity leave become more positive, the perceived feasibility of taking leave continues to depend on practical constraints such as staffing flexibility and task coverage. In other

[16] Appendix D provides the full question wording and response options.

words, shifting beliefs may be necessary but not sufficient to change intended behavior without corresponding workplace support.

Figure A.1: Age and intention to take paternity leave



Notes. This figure shows the relationship between the respondent's intention to take paternity leave and the respondent's age (left) and spouse's age (right). Using data from the baseline survey, we plot binned scatter plots, where each point represents the share of respondents intending to take paternity leave within one of 20 equally sized age bins.

Table A.1: Effects of training on intention to take paternity leave

	Intention to take paternity leave		
	(1)	(2)	(3)
Training	-0.052		
	(0.048)		
Training × Younger Age		-0.012	
		(0.065)	
Training × Older Age		-0.088*	
		(0.048)	
Training × Above-median replaceability			0.079
			(0.069)
Training × Below-median replaceability			-0.126*
			(0.070)
Observations	775	775	768
No. clusters	69	69	69
Control Mean	0.251	0.251	0.251
PDS LASSO Control	Yes	Yes	Yes
P-value: coefficient heterogeneity		0.204	0.043

Notes. This table reports the effect of the training intervention on respondents' intention to take paternity leave. We estimate Average Treatment Effect (ATE) of training participation using training assignment (and its interaction terms with indicated additional variables for Columns (2)–(3)) as instrumental variables. The sample is restricted to respondents aged 50 or younger. The dependent variable is an indicator variable which takes 1 if the respondent has plans or hopes to take paternity leave at some point in the future or currently taking it. "Younger Age" and "Older Age" are indicator variables equal to 1 if the respondent is younger or older than the median age (40), respectively. "Above-median replaceability" (or "Below-median replaceabilityy") is indicator variable that equals to 1 if the worker has more than (or fewer than or equal to) the median number of coworkers (2) available to take over their tasks within a day, measured in the baseline survey. Standard errors in parentheses are clustered at the randomization-unit level. All equations control for randomization strata fixed effects, baseline value of the outcome variable, and control variables selected by LASSO PDS.

Table A.2: Impacts of training on intention to take paternity leave (ITT)

	Intention to take paternity leave		
	(1)	(2)	(3)
Training assignment	-0.023		
	(0.020)		
Training assignment × Younger Age		-0.005	
		(0.029)	
Training assignment × Older Age		-0.039**	
		(0.019)	
Training assignment × Above-median replaceability			0.042
			(0.033)
Training assignment × Below-median replaceability			-0.055**
			(0.027)
Observations	775	775	768
No. clusters	69	69	69
Control Mean	0.251	0.251	0.251
PDS LASSO Control	Yes	Yes	Yes
P-value: coefficient heterogeneity		0.229	0.038

Notes. The specification follows that of Table A.1, except that here we estimate the intent-to-treat (ITT) effects of training assignment. The variable "training assignment" is defined as an indicator for being assigned to the early training group.

Table A.3: Impacts of training on intention to take paternity leave: variables spanning full choice set for the question

	(1)	(2)	(3)	(4)
	Have an intention to take PL	Will not take PL even if I have a (new) child	Finished raising or not planning to raise children or take PL	Unsure
Training participation	-0.052	-0.068**	0.160**	-0.037
	(0.048)	(0.029)	(0.068)	(0.066)
Observations	775	775	775	775
No. clusters	69	69	69	69
Baseline Mean	0.272	0.059	0.459	0.209
PDS LASSO Control	Yes	Yes	Yes	Yes

Notes. The dependent variables are constructed based on the 1st follow-up survey question asking "Do you plan or hope to take paternity leave in the future? Please select one that applies: 1. I am currently taking paternity leave; 2. I plan or hope to take paternity leave within the next six months; 3. I plan or hope to take paternity leave in the future, but not sure when; 4. I do not plan to take paternity leave, even if I have a (new) child in the future; 5. I have finished raising children, do not plan to have or raise children, or am currently raising children but do not plan to take paternity leave in the future; 6. Not sure; 7. Prefer not to answer." Column (1) is an indicator variable equal to 1 if the respondent selected option 1, 2, or 3. Column (2) is an indicator variable equal to 1 if the respondent selected option 4. Column (3) is an indicator variable equal to 1 if the respondent selected option 5. Column (4) is an indicator variable equal to 1 if the respondent selected option 6. We drop the sample who selected option 7. The rest of the specification is the same as Table A.1. As in Table A.1, we focus on the sample of respondents who are aged 50 or younger and did not indicate "I have finished raising children, or do not expect to engage in childcare" in the baseline survey.

B Details of Robustness Checks

B.1 Details of Social Desirability Scale

Table B.1: Japanese Module of Social Desirability Scale

If I could enter a movie theater without paying and no one saw me, I would probably do it.	Yes = 0, No = 1
Sometimes, I resent authority figures (bosses, teachers, parents, etc.), even when I know they are right.	Yes = 0, No = 1
I have pretended to be ill.	Yes = 0, No = 1
I don't mind admitting when I don't know something.	Yes = 1, No = 0
I always behave politely, even to people I don't like.	Yes = 1, No = 0
I have never considered shifting the blame for something I've done onto someone else.	Yes = 1, No = 0
I have never felt annoyed when someone has done me a favor and made me feel indebted.	Yes = 1, No = 0
I have never found it troublesome when someone has a different way of thinking.	Yes = 1, No = 0
I have seldom wanted to scold someone harshly.	Yes = 1, No = 0
I sometimes feel irritated by requests from others who take my goodwill for granted.	Yes = 0, No = 1

Notes. Kitamura and Suzuki (1986)'s short-from module developed from Crowne and Marlowe (1960).

Table B.2: Impact of training on beliefs: interaction with SDS

	Favorable toward PL uptake			PL benefits workplace		
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)
Training	0.104	0.065	-0.190	0.386**	0.247	0.032
	(0.071)	(0.131)	(0.162)	(0.166)	(0.157)	(0.130)
Training × High SDS	-0.094	-0.044	-0.202	-0.166	-0.012	0.006
	(0.159)	(0.269)	(0.258)	(0.285)	(0.237)	(0.181)
High SDS	0.051	0.005	0.131	0.162	0.060	0.091
	(0.057)	(0.100)	(0.082)	(0.102)	(0.099)	(0.072)
Observations	882	872	880	880	872	879
No. clusters	69	69	69	69	69	69
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	5.223	4.517	4.444	4.560	4.337	4.342

Notes. This table shows a robustness check for the impact of the training intervention on beliefs to address concerns about social desirability bias. Using the Social Desirability Score (SDS), which measures the respondent's tendency to provide socially favorable answers, we construct an indicator variable, High SDS, which equals one if the respondent's SDS is above the sample median, and zero otherwise. As a robustness check, we modify the main specification in Table 3 by interacting training participation with an indicator variable for the High SDS indicator and using training assignment with the same indicator variable as an additional instrumental variable.

Table B.3: Impact of information on beliefs: interaction with SDS

	Favorable toward PL uptake			PL benefits workplace		
	(1) 2nd-order belief (Coworkers)	(2) 2nd-order belief (Managers)	(3) 1st-order belief (Own belief)	(4) 2nd-order belief (Coworkers)	(5) 2nd-order belief (Managers)	(6) 1st-order belief (Own belief)
Information	0.117	0.190**	0.247***	0.105	0.246***	0.074
	(0.093)	(0.094)	(0.068)	(0.091)	(0.079)	(0.146)
Information × High SDS	-0.027	0.080	-0.338***	-0.094	-0.090	-0.058
	(0.127)	(0.154)	(0.087)	(0.095)	(0.145)	(0.185)
High SDS	0.013	0.030	0.224***	0.122	0.208**	0.096
	(0.091)	(0.085)	(0.075)	(0.095)	(0.088)	(0.118)
Observations	409	415	415	408	414	414
No. clusters	58	58	58	58	58	58
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Control Mean	4.624	4.466	5.332	4.595	4.464	4.692

Notes. This table shows a robustness check for the impact of the information intervention on beliefs to address concerns about social desirability bias. Using the Social Desirability Score (SDS), which measures the respondent's tendency to provide socially favorable answers, we construct an indicator variable, High SDS, which equals one if the respondent's SDS is above the sample median, and zero otherwise. As a robustness check, we modify the main specification in Table 6 by including the information treatment indicator, the High SDS indicator, and their interaction term.

Table B.4: Behavioral changes: interaction with Social Desirability Score

Panel A: Own behaviors

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)	(6) Researched about PL
Training	0.152	-0.343	0.978	-0.0969	-0.283	0.123
	(2.612)	(0.246)	(0.675)	(0.162)	(0.345)	(0.0817)
Training × High SDS	-0.709	0.419	-0.492	0.178	0.667	0.0361
	(3.626)	(0.459)	(1.122)	(0.275)	(0.714)	(0.125)
High SDS	0.401	0.150	0.152	-0.0259	-0.149	0.00186
	(1.631)	(0.187)	(0.478)	(0.107)	(0.236)	(0.0315)
Observations	859	639	639	852	852	874
No. clusters	69	66	66	69	69	69
Baseline Mean	44.640	1.492	6.701	0.901	2.047	0.192
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Spouse's behaviors

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)
Training	3.278	0.393	-0.228	-0.558	-0.0186
	(2.369)	(0.603)	(0.888)	(0.630)	(0.452)
Training × High SDS	-0.542	0.128	0.920	0.255	0.190
	(3.644)	(1.051)	(1.561)	(0.880)	(0.817)
High SDS	0.794	-0.116	-0.422	-0.426	0.0931
	(1.835)	(0.408)	(0.714)	(0.336)	(0.296)
Observations	724	616	616	718	718
No. clusters	68	65	65	67	67
Baseline Mean	21.468	5.071	7.912	4.056	3.987
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes

Notes. This table shows a robustness check for the impact of the training intervention on behaviors to address concerns about social desirability bias. Using the Social Desirability Score (SDS), which measures the respondent's tendency to provide socially favorable answers, we construct an indicator variable, High SDS, which equals one if the respondent's SDS is above the sample median, and zero otherwise. As a robustness check, we modify the main specification in Table 4 by interacting training participation with an indicator variable for the High SDS indicator and using training assignment with the same indicator variable as an additional instrumental variable.

B.2 Subsample analysis of firm with highest program sign-up rate

Table B.5: Impact of Training on Behaviors: Sub-sample of firm with the highest program sign-up rate

Panel A: Own behaviors

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)	(6) Researched about PL
Training	1.096	0.242	1.167	-0.312	-0.317	0.086
	(3.873)	(0.405)	(0.797)	(0.241)	(0.360)	(0.091)
Observations	580	406	406	574	574	599
No. clusters	34	33	33	34	34	34
Baseline Mean	45.195	1.261	5.851	0.817	1.900	0.097
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Spouse's behaviors

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)
Training	5.543	0.303	-0.028	-0.991	0.191
	(3.801)	(0.685)	(0.899)	(0.704)	(0.637)
Observations	463	389	389	459	459
No. clusters	34	33	33	34	34
Baseline Mean	21.583	4.394	7.080	4.068	3.976
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes

Notes. In this table, we use the sample of a firm that achieved the highest response rate (41%). The rest of the specification is the same as that of Table 4.

Table B.6: Impact of Training on Beliefs: Sub-sample of firm with the highest program sign-up rate

	Favorable toward PL uptake			PL benefits workplace		
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)
Training	0.211***	0.375	-0.270	0.615***	0.604***	0.049
	(0.079)	(0.231)	(0.267)	(0.163)	(0.173)	(0.189)
Observations	606	596	600	604	595	601
No. clusters	34	34	34	34	34	34
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	5.031	4.337	4.115	4.454	4.225	4.108

Notes. In this table, we use the sample of a firm that achieved the highest response rate (41%). The rest of the specification is the same as that of Table 3.

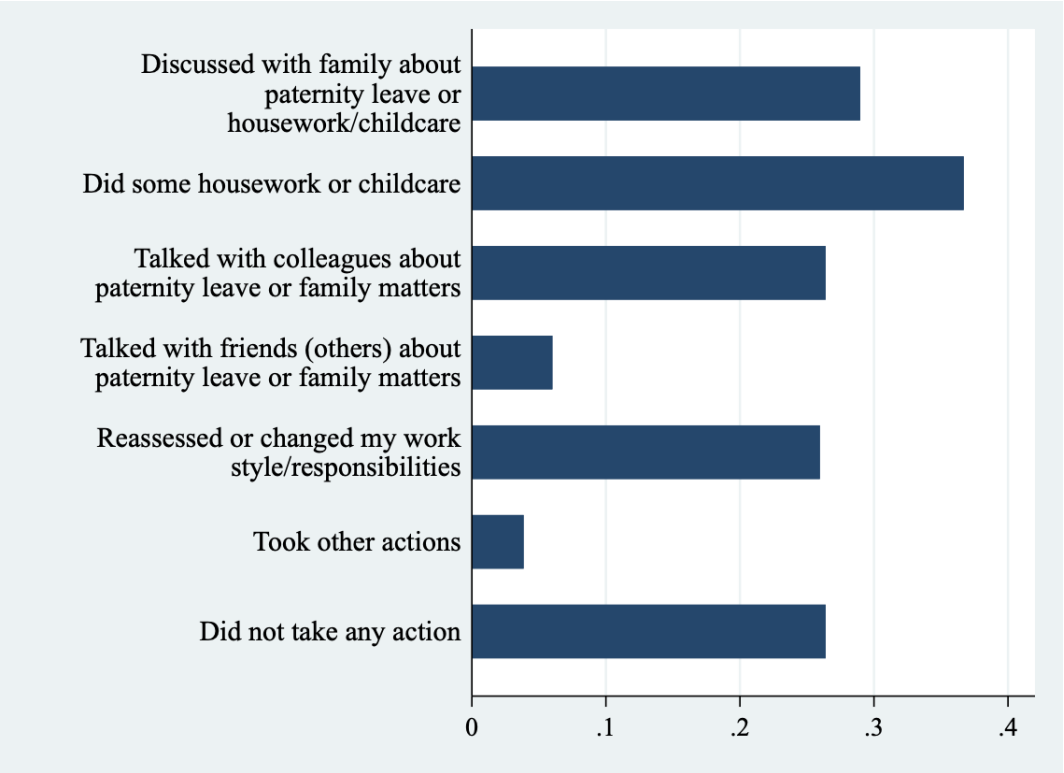
Table B.7: Impact of information on beliefs: Sub-sample of firm with the highest program sign-up rate

	Favorable toward PL uptake			PL benefits workplace		
	(1) 2nd-order belief (Coworkers)	(2) 2nd-order belief (Managers)	(3) 1st-order belief (Own belief)	(4) 2nd-order belief (Coworkers)	(5) 2nd-order belief (Managers)	(6) 1st-order belief (Own belief)
Information	0.111	0.132	0.056	0.008	0.123*	0.017
	(0.086)	(0.125)	(0.069)	(0.078)	(0.074)	(0.085)
Observations	229	234	234	229	234	233
No. clusters	29	29	29	29	29	29
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Control Mean	4.575	4.369	5.221	4.583	4.352	4.639

Notes. In this table, we use the sample of a firm that achieved the highest rate of training program sign-up rate (41%). The rest of the specification is the same as that of Table 6.

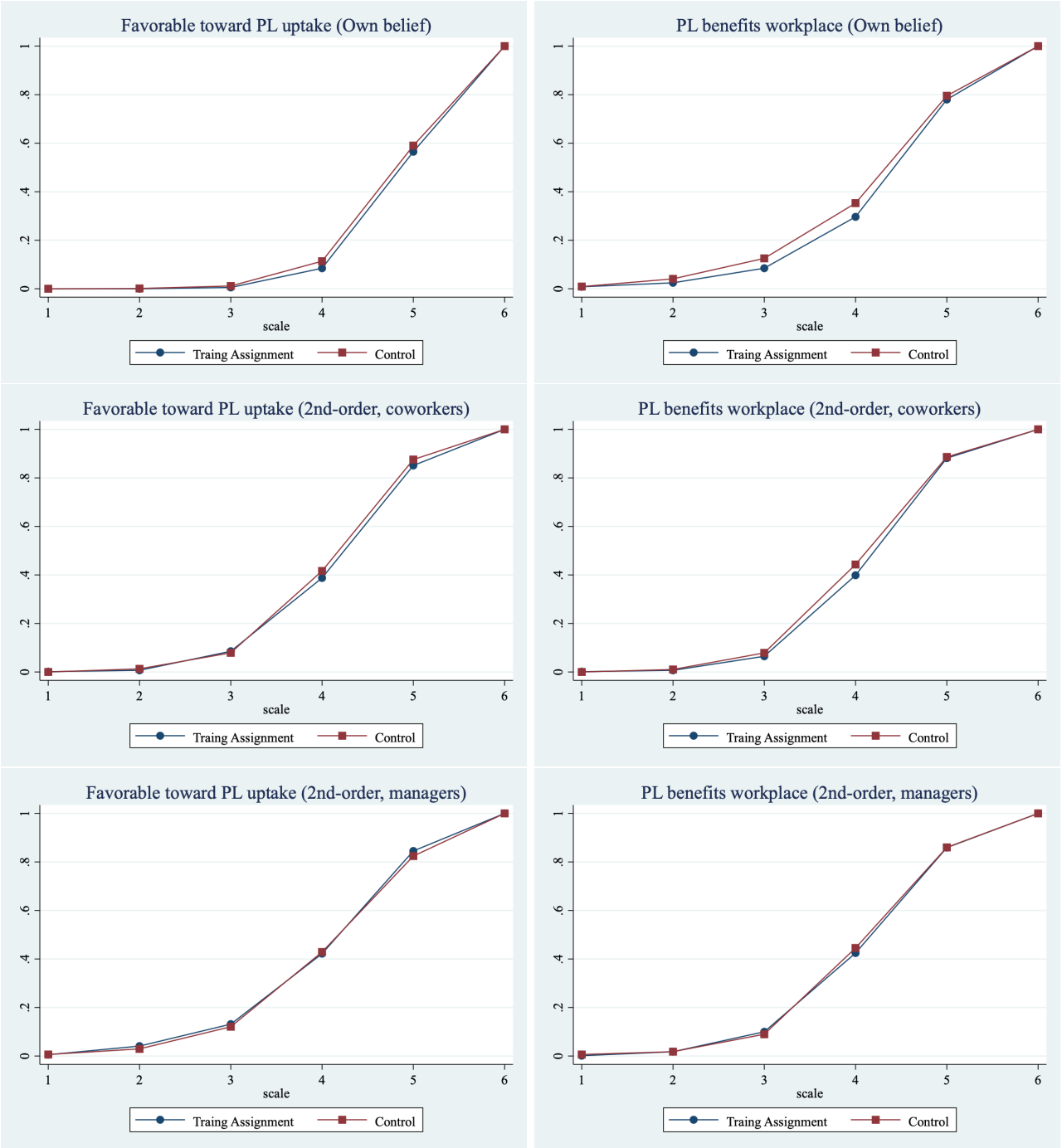
C Additional Figures and Tables

Figure C.1: Actions taken within 3 days after the training



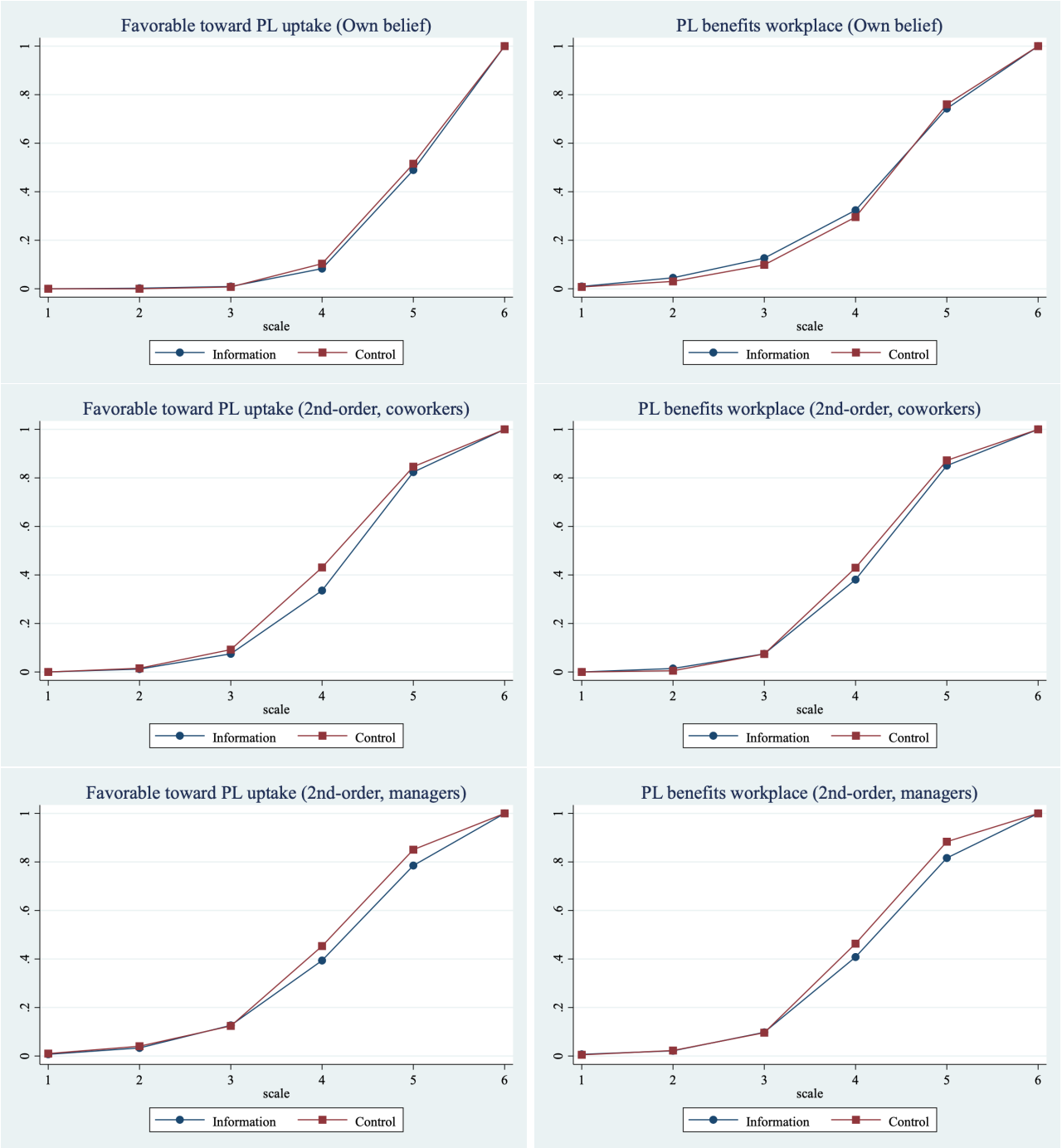
Notes. In the second follow-up survey, respondents who had participated in the training were asked whether they had taken any action within three days after the training. This figure shows the fraction of respondents who took each action. Multiple choices were allowed.

Figure C.2: Cumulative Distribution: Training Treatment vs. Control in 1st Follow-up



Notes. Data on first- and second-order beliefs measured in 1st follow-up survey.

Figure C.3: Cumulative Distribution: Information Treatment vs. Control



Notes. Data on first- and second-order beliefs measured in 1st follow-up survey.

Table C.1: Program sign-up and survey response rates in each branch office and training treatment assignment

	Program Sign-up Rate		Survey Response Rate Baseline		Survey Response Rate 1st Follow-Up		Survey Response Rate 2nd Follow-up	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Training	0.028	0.021	0.051	0.050	-0.027	-0.027	0.038	0.038
	(0.076)	(0.066)	(0.037)	(0.037)	(0.050)	(0.051)	(0.061)	(0.062)
Observations	76	76	80	80	80	80	80	80
Strata FE	No	Yes	No	Yes	No	Yes	No	Yes
Mean Dep. Var	0.259	0.259	0.930	0.930	0.806	0.806	0.592	0.592

Notes. This table examines the relationship between the training treatment assignment and branch level sign-up rate to the training program and survey response rates for baseline and the first follow-up surveys. There were 1,962 employees (in 80 branch offices) who signed up for the training program, to whom the invitations to the baseline and follow-up surveys were sent. In Columns (1)–(2), the dependent variable is the sign-up rate for the training program among all employees in each brach office. Because we do not have information on the total number of employees in four branch offices, observations for these offices are missing. In the remaining columns, the dependent variables are the response rates to the baseline survey (Columns (3)–(4)), the first follow-up survey (Columns (5)–(6)), and the second follow-up survey (Columns (7)–(8)) among male employees who signed up for the training program in each branch office. Columns (2), (4), (6), and (8) control for the randomization strata fixed effect. Robust standard errors are shown in the parentheses.

Table C.2: Characteristics of participating organizations before intervention

		% Paternity leave uptake	% Female employees	% Female managers
Organization 1	mid-size municipality	20	-	10-15
Organization 2	mid-size municipality	60	40	-
Organization 3	listed firm in retail/wholesale	-	20	10-15
Organization 4	listed firm in retail/wholesale	20	30	<10
Representative sample (public)	local municipality offices[a]	44.1	39.6	19
Representative sample (private)	private firms[b]	14	29.6	12.7
Representative sample (private)	listed firms[c]	52.2		-

Notes. The figures for the four organizations were rounded for confidentiality purposes. Paternity leave uptake ratio is based on publicly available information from 2022. The proportion of female employees and the proportion of female managers in the four organizations are based on the most recent publicly available information prior to the interventions (2021–2023). The population of the mid-size municipalities are between 100,000 and 200,000.

a - "Survey Results on Working Conditions in Local Governments, Survey on the Actual Conditions of Local Government Salaries (Ministry of Internal Affairs and Communications, Japan)", "Status of Measures for Gender Equality or Women-Related Policies in Local Governments (Cabinet Office)". All figures are from 2022, except for the proportion of female employees (2018).
b - "Basic Survey on Gender Equality in Employment Management (Ministry of Health, Labour, and Welfare, Japan)". All figures are based on data from 2022.
c - "Survey on paternity leave uptake among 2,456 listed companies for FY2022: 52.2% uptake rate, well above official statistics (Tokyo Shoko Research., September 12, 2023)".

Table C.3: Impacts of training on beliefs (ITT)

	Favorable toward PL uptake			PL benefits workplace		
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)
Training assignment	0.031	0.062	-0.036	0.182***	0.119*	0.040
	(0.023)	(0.060)	(0.044)	(0.048)	(0.061)	(0.048)
Observations	1225	1206	1218	1223	1208	1218
Baseline Mean	5.196	4.512	4.443	4.553	4.330	4.323
No. clusters	74	74	74	74	74	74
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table reports the intent-to-treat (ITT) effects of the training intervention on own beliefs of the male respondents and their perception about workplace norms. The coefficients are obtained by regressing the outcome variables on an indicator for assignment of the branch office to the early training group. The rest of the specification is the same as in Table 3.

Table C.4: Impact of training on beliefs: without PDS LASSO control

	Favorable toward PL uptake			PL benefits workplace		
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)
Training	0.102*	0.143	-0.105	0.446***	0.288**	0.093
	(0.061)	(0.146)	(0.115)	(0.106)	(0.144)	(0.120)
Observations	1225	1206	1218	1223	1208	1218
Baseline Mean	5.196	4.512	4.443	4.553	4.330	4.323
No. clusters	74	74	74	74	74	74
PDS LASSO Control	No	No	No	No	No	No

Notes. The specification is the same as in Table 3 except that we do not control for the variables selected by PDS LASSO.

Table C.5: Impact of training treatment on beliefs: HTE by initial belief

	Favorable toward PL uptake			PL benefits workplace		
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)
Training × Higher Baseline belief	0.031	0.228	-0.306	0.317	0.262*	0.220*
	(0.098)	(0.237)	(0.285)	(0.273)	(0.156)	(0.121)
Training × Lower Baseline belief	0.114*	0.147	-0.064	0.489***	0.317*	-0.025
	(0.067)	(0.144)	(0.110)	(0.113)	(0.168)	(0.192)
Observations	1225	1206	1218	1223	1208	1218
No. clusters	74	74	74	74	74	74
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	5.196	4.512	4.443	4.553	4.330	4.323
P-val: High=Low	0.486	0.694	0.332	0.569	0.724	0.282

Notes. We estimate the heterogeneity in the treatment effect of the training intervention by the baseline value of the belief variable indicated in each column (i.e., own belief, coworker wedge, or manager wedge, for the indicated statement). Specifically, for each belief variable in the column, "Higher (Lower) baseline belief" indicates that the respondent's baseline belief was above (below) the median among the baseline male sample. The specification follows that of Table 3, except that the training participation is interacted with these baseline belief indicators and training assignment interacted with the same indicator variables are used as instrumental variables.

Table C.6: Impact of training treatment on beliefs: HTE by manager/non-manager and existence of children

	Favorable toward PL uptake			PL benefits workplace		
	(1) 1st-order belief (Own belief)	(2) 2nd-order belief (Coworkers)	(3) 2nd-order belief (Managers)	(4) 1st-order belief (Own belief)	(5) 2nd-order belief (Coworkers)	(6) 2nd-order belief (Managers)
Panel A: Manager / Non-manager						
Training × Manager	0.113	0.105	0.032	0.285**	0.182	0.016
	(0.075)	(0.149)	(0.125)	(0.114)	(0.158)	(0.112)
Training × Non-manager	0.046	0.134	-0.155	0.598**	0.432*	0.389*
	(0.147)	(0.220)	(0.271)	(0.256)	(0.246)	(0.231)
Manager	-0.020	-0.022	-0.038	-0.019	-0.029	0.025
	(0.019)	(0.019)	(0.041)	(0.035)	(0.031)	(0.038)
Observations	2962	2938	2949	2960	2938	2946
No. clusters	77	77	77	77	77	77
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	5.218	4.525	4.426	4.622	4.365	4.357
P-val: Manager=Non-manager	0.599	0.878	0.538	0.245	0.294	0.121
Panel B: Have a child / No child						
Training × Children	0.068	0.140	0.008	0.471***	0.248	0.129
	(0.087)	(0.165)	(0.107)	(0.116)	(0.151)	(0.120)
Training × No children	0.121	0.013	-0.233	0.161	0.254	0.290
	(0.187)	(0.205)	(0.324)	(0.343)	(0.278)	(0.233)
Child	0.002	-0.039	-0.071*	-0.030	-0.020	-0.023
	(0.029)	(0.027)	(0.038)	(0.037)	(0.033)	(0.032)
Observations	2962	2938	2949	2960	2938	2946
No. clusters	77	77	77	77	77	77
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Mean	5.218	4.525	4.426	4.622	4.365	4.357
P-val: Child=No Child	0.767	0.476	0.433	0.330	0.980	0.471

Notes. We estimate the heterogeneity of the treatment effect of the training intervention by managers and non-managers (Panel A) and by whether the respondent has at least one child or not (Panel B). The specification follows that of Table 3, except that the training assignment is interacted with these baseline characteristics and training assignment interacted with the same indicator variables are used as instrumental variables.

Table C.7: Impact of Training on Behaviors (ITT)

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)	(6) Researched about PL
Panel A: Own behaviors						
Training assignment	-0.325	-0.045	0.368*	0.004	0.049	0.061***
	(0.712)	(0.089)	(0.190)	(0.046)	(0.103)	(0.023)
Observations	1177	876	876	1161	1161	1211
No. clusters	74	72	72	74	74	74
Control Mean	43.981	1.386	5.768	1.003	2.251	0.189
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)
Panel B: Spouse behaviors					
Training assignment	1.473**	-0.002	0.079	-0.213	-0.035
	(0.664)	(0.163)	(0.188)	(0.162)	(0.139)
Observations	994	846	846	980	980
No. clusters	74	72	72	74	74
Control Mean	20.213	4.779	7.110	4.487	4.182
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes

Notes. This table reports the intent-to-treat (ITT) effects of the training intervention on the behaviors of male respondents and their spouses. The coefficients are obtained by regressing the outcome variables on an indicator for assignment of the branch office to the early training group. Panels A shows the results for male respondents, and Panel B shows the results for their spouses. Standard errors in parentheses are clustered at randomization unit level. All equations control for randomization strata fixed effects, baseline value of the outcome variable, and control variables selected by PDS LASSO.

Table C.8: Impact of training on behaviors: without PDS LASSO control

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)	(6) Researched about PL
Panel A: Own behaviors						
Training	0.013	-0.074	1.381**	-0.045	0.033	0.156***
	(1.899)	(0.244)	(0.527)	(0.115)	(0.239)	(0.053)
Observations	1177	876	876	1161	1161	1211
No. clusters	74	72	72	74	74	74
Baseline Mean	45.140	1.443	6.638	0.912	2.049	0.180
PDS LASSO Control	No	No	No	No	No	No

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)
Panel B: Spouse behaviors					
Training	3.578**	0.326	0.647	-0.493	-0.082
	(1.746)	(0.449)	(0.580)	(0.396)	(0.350)
Observations	994	846	846	980	980
No. clusters	74	72	72	74	74
Baseline Mean	21.757	5.101	7.915	4.090	4.018
PDS LASSO Control	No	No	No	No	No

Notes. The specification is the same as in Table 4 except that we do not control for the variables selected by PDS LASSO.

Table C.9: Impact of training on behaviors: HTE by baseline hours

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekend)	(3) Daily Childcare Hours (Weekday)	(4) Daily Housework Hours (Weekend)	(5) Daily Housework Hours (Weekday)
Training × Longer baseline hours	-0.503	2.316***	0.076	0.398	0.289**
	(1.937)	(0.693)	(0.251)	(0.310)	(0.131)
Training × Shorter baseline hours	-1.681	-0.745	-0.579	-0.498	-0.373**
	(3.012)	(0.498)	(0.385)	(0.385)	(0.156)
Observations	1177	876	876	1161	1161
No. clusters	74	72	72	74	74
Baseline Mean	45.140	6.638	1.443	2.049	0.912
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes
P-values: Coefficients difference	0.715	0.000	0.129	0.082	0.000

Notes. We estimate the heterogeneity of the treatment effect of the training intervention by the amount of time the respondent spent on the task indicated in each column at the time of the baseline survey. Specifically, for each task, 'Longer (Shorter) baseline hours' indicates that the respondent spent more (less) than the median number of hours on that task among male sample in the baseline survey. The specification follows that of Table 4, Panel A, except that the training assignment is interacted with these indicators for baseline hours, and training assignment interacted with the same indicator variables are used as instrumental variables.

Table C.10: Impact of training on behaviors: HTE by manager/non-manager

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekend)	(3) Daily Childcare Hours (Weekday)	(4) Daily Housework Hours (Weekend)	(5) Daily Housework Hours (Weekday)	(6) Researched about PL
Training × Manager	-0.699	0.749	0.070	0.158	0.170	0.153***
	(1.477)	(0.514)	(0.277)	(0.304)	(0.108)	(0.057)
Training × Non-manager	-1.349	1.417	-0.080	0.001	-0.195	0.170**
	(3.555)	(0.991)	(0.417)	(0.390)	(0.250)	(0.083)
Observations	1177	876	876	1161	1161	1211
No. clusters	74	72	72	74	74	74
Baseline Mean	45.140	6.638	1.443	2.049	0.912	0.180
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes
P-values: Coefficients difference	0.865	0.574	0.766	0.748	0.200	0.849

Notes. We estimate the heterogeneity of the treatment effect of the training intervention by managers and non-managers. The specification is the same as in Table 4, Panel A, except that the training assignment is interacted with indicators for managers and non-managers, and training assignment interacted with the same indicator variables are used as instrumental variables.

Table C.11: Weekly working hours by thresholds

	(1) >0	(2) >10	(3) >20	(4) >30	(5) >40	(6) >50	(7) >60
Panel A: Respondents							
Training	0.007	0.040	0.017	0.009	0.041	-0.034	-0.036
	(0.006)	(0.033)	(0.038)	(0.040)	(0.062)	(0.041)	(0.028)
Observations	1177	1177	1177	1177	1177	1177	1177
No. clusters	74	74	74	74	74	74	74
Control Mean	0.995	0.912	0.896	0.896	0.630	0.209	0.047
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Spouse							
Training	0.016	0.091*	0.149**	0.031	-0.007	0.006	0.019*
	(0.037)	(0.048)	(0.060)	(0.047)	(0.032)	(0.015)	(0.010)
Observations	994	994	994	994	994	994	994
No. clusters	74	74	74	74	74	74	74
Control Mean	0.697	0.607	0.436	0.322	0.098	0.021	0.002
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. The dependent variables are indicator variables that take 1 if the working hour exceeds the threshold indicated in each column and 0 otherwise. We control for the baseline value of the same indicator variable in all equations. The specification follows that of Table 4.

Table C.12: Impact of Training on Behaviors by Presence and Age of Children (ITT)

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Daily Housework Hours (Weekday)	(5) Daily Housework Hours (Weekend)
Panel A: Own hours					
Training × Young children	-1.810	-0.327	1.031**	-0.135	-0.399
	(1.234)	(0.218)	(0.403)	(0.0988)	(0.331)
Training × Only older children	-0.0724	0.101	0.133	0.155**	0.180
	(1.065)	(0.0974)	(0.234)	(0.0616)	(0.113)
Training × No children	0.821			0.0650	0.258**
	(2.664)			(0.108)	(0.118)
Observations	1015	859	859	1001	1001
No. clusters	74	72	72	74	74
Baseline Mean	45.591	1.455	6.728	0.880	2.041
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes
Panel B: Spouse hours					
Training × Young children	1.982*	0.140	-0.206	-0.605*	-0.936**
	(1.135)	(0.386)	(0.541)	(0.338)	(0.435)
Training × Only older children	0.714	0.0824	0.177	-0.136	0.259**
	(0.808)	(0.192)	(0.311)	(0.188)	(0.130)
Training × No children	4.271			0.227	0.568
	(2.843)			(0.440)	(0.372)
Observations	994	846	846	980	980
No. clusters	74	72	72	74	74
Baseline Mean	21.757	5.101	7.915	4.090	4.018
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes

Notes. This table uses the sample of men who were married at the time of the baseline survey. We estimate heterogeneity in the Intent-to-Treat (ITT) effect by interacting training assignment with indicator variables for the presence and age group of children. "Young children", "Only older children", and "No children" are indicator variables equal to 1 if the household has at least one young child (aged 5 or below), only older children (aged 6 or above), or no children, respectively. Standard errors in parentheses are clustered at randomization unit level. All equations control for randomization strata fixed effects, baseline value of the outcome variable, and control variables selected by PDS LASSO.

Table C.13: Impact of training on working hours among men with young children: HTE by baseline beliefs and workplace

	Weekly Working Hours		
	(1)	(2)	(3)
Training × Favorable toward PL (Own belief) High	-8.940*		
	(4.865)		
Training × Favorable toward PL (Own belief) Low	1.612		
	(4.349)		
Training × Favorable toward PL (Wedge: Coworkers) High		-8.775**	
		(4.020)	
Training × Favorable toward PL (Wedge: Coworkers) Low		2.350	
		(4.646)	
Training × Favorable toward PL (Wedge: Manager) High			-5.369
			(4.996)
Training × Favorable toward PL (Wedge: Manager) Low			-1.994
			(4.831)
Observations	292	292	292
No. clusters	51	51	51
Baseline Mean	44.870	44.870	44.870
PDS LASSO Control	Yes	Yes	Yes
P-values: Coefficients difference	0.148	0.101	0.675

Notes. We estimate the heterogeneity of the effect of the training intervention on working hours by baseline beliefs. "Favorable toward PL (Own belief) High" (or "Low") is an indicator variable equal to 1 if the respondent expressed a relatively more (or less) favorable view toward men's paternity leave uptake at baseline, meaning their agreement level was above (or below) the sample median. "Favorable toward PL (Wedge: Coworkers) High" (or "Low") is an indicator variable equal to 1 if the respondent's belief about the coworkers' perception toward men's paternity leave uptake is relatively positive, meaning the wedge for coworker was above (or below) the sample median. "Favorable toward PL (Wedge: Managers) High" (or "Low") is similarly defined for the respondent's belief about managers' perception. We focus on the sample of married male respondents having at least one child whose age is five or below. The rest of the specification is the same as in Table 4, Panel A. Training assignment interacted with the same indicator variables for baseline beliefs are used as instrumental variables.

Table C.14: Behavioral changes: Total hours of couple

	(1) Weekly Working Hours	(2) Daily Childcare Hours (Weekday)	(3) Daily Childcare Hours (Weekend)	(4) Weekly Childcare Hours	(5) Daily Housework Hours (Weekday)	(6) Daily Housework Hours (Weekend)	(7) Weekly Housework Hours
Panel A: LATE							
Training	2.868	-0.198	1.188	0.981	-0.401	-0.0784	-2.005
	(2.920)	(0.456)	(0.794)	(3.129)	(0.427)	(0.464)	(2.769)
Observations	994	845	845	845	979	979	979
Panel B: Heterogeneity by Child Presence and Age							
Training × Young children	1.738	-0.361	1.864	1.838	-1.696**	-3.274**	-14.83**
	(4.553)	(0.970)	(1.813)	(7.177)	(0.751)	(1.335)	(5.929)
Training × Only older children	2.222	0.133	0.720	2.052	-0.0377	1.008**	1.996
	(4.292)	(0.572)	(1.209)	(4.525)	(0.492)	(0.514)	(2.966)
Training × No children	13.49				0.825	2.350	9.041
	(13.73)				(1.243)	(1.494)	(8.602)
Observations	994	845	845	845	979	979	979
No. clusters	74	72	72	72	74	74	74
Baseline Mean	67.464	6.564	14.661	62.142	4.954	6.058	36.885
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table uses the sample of respondents who were married at the time of the baseline survey. "Weekly Working Hours" refers to the combined total weekly working hours of the respondent and his spouse. "Daily Childcare Hours (Weekday)" (or "Daily Childcare Hours (Weekend)") is the total daily hours of the respondent and his spouse spent on childcare on weekdays (or weekends). Similarly, "Daily Housework Hours (Weekday)" (or "Daily Housework Hours (Weekend)") is the couple's daily total housework hours on weekdays (or weekends). "Weekly Childcare Hours" (or "Weekly Housework Hours") refers to the combined total *weekly* hours that the respondent and his spouse spent on childcare (or housework). The other specifications are the same as Table 5.

Table C.15: Workplace management

	(1) Num. workers for my task today	(2) Num. workers for my task in one month	(3) Meeting hours	(4) Days work from home
Training	-0.0418	-0.0227	-0.3642	-0.0684
	(0.1918)	(0.2164)	(1.2361)	(0.0438)
Observations	1095	1095	1196	1198
No. clusters	72	72	74	74
Control Mean	2.060	2.024	4.865	0.240
PDS LASSO	Yes	Yes	Yes	Yes

Notes.

Table C.16: Workplace relationship

	(1) Manager knows family composition	(2) Talk about private matters with manager	(3) Talk about private matters with coworkers	(4) Psychological safety	(5) Coworkers relationships	(6) Recommend firm to jobseeker
Training	-0.006	-0.114***	-0.091*	0.005	0.070	0.012
	(0.037)	(0.044)	(0.050)	(0.139)	(0.161)	(0.062)
Observations	1194	1196	1196	1203	1202	1194
No. clusters	74	74	74	74	74	74
Control Mean	0.783	0.803	0.595	4.022	3.787	0.495
PDS LASSO	Yes	Yes	Yes	Yes	Yes	Yes

Notes.

Table C.17: Impact of information treatment on outcomes measured in second follow-up survey

	(1) Psychological Safety	(2) Work relationship	(3) Recommend firm to jobseekers
Information	0.0777	0.148	-0.00735
	(0.0632)	(0.0985)	(0.0391)
Observations	410	410	405
Baseline Mean	4.000	3.835	0.511
PDS LASSO Control	Yes	Yes	Yes

Notes.

Table C.18: Impacts of information on intention to take paternity leave: variables spanning full choice set for the question

	(1) Have an intention to take PL	(2) Will not take PL even if I have a (new) child	(3) Finished raising or not planning to raise children or take PL	(4) Unsure
Information	-0.007	0.004	0.036	-0.021
	(0.031)	(0.013)	(0.037)	(0.037)
Observations	425	425	425	425
No. clusters	57	57	57	57
Baseline Mean	0.376	0.071	0.287	0.266
PDS LASSO Control	Yes	Yes	Yes	Yes

Notes. Standard errors are clustered at radomization unit level in parentheses. All equations control for randomization strata fixed effects and variables selected by PDS LASSO.

Notes. The dependent variables are constructed based on the 1st follow-up survey question asking "Do you plan or hope to take paternity leave in the future? Please select one that applies: 1. I am currently taking paternity leave; 2. I plan or hope to take paternity leave within the next six months; 3. I plan or hope to take paternity leave in the future, but not sure when; 4. I do not plan to take paternity leave, even if I have a (new) child in the future; 5. I have finished raising children, do not plan to have or raise children, or am currently raising children but do not plan to take paternity leave in the future; 6. Not sure; 7. Prefer not to answer." Column (1) is an indicator variable equal to 1 if the respondent selected option 1, 2, or 3. Column (2) is an indicator variable equal to 1 if the respondent selected option 4. Column (3) is an indicator variable equal to 1 if the respondent selected option 5. Column (4) is an indicator variable equal to 1 if the respondent selected option 6. We drop the sample who selected option 7. The rest of the specification is the same as Column (7) in Table 6. As in Column (7) in Table 6, we focus on the sample of respondents who are aged 50 or younger and did not indicate "I have finished raising children, or do not expect to engage in childcare" in the baseline survey.

Table C.19: Interaction of information and training on beliefs about men's take-ups of paternity leave

	Favorable toward PL uptake			PL benefits workplace			Intention to take PL
	(1) 2nd-order belief (Coworkers)	(2) 2nd-order belief (Managers)	(3) 1st-order belief (Own belief)	(4) 2nd-order belief (Coworkers)	(5) 2nd-order belief (Managers)	(6) 1st-order belief (Own belief)	(7)
Training assignment	0.102	-0.131*	-0.046	0.118	0.116	0.295***	0.038
	(0.089)	(0.075)	(0.047)	(0.108)	(0.104)	(0.090)	(0.036)
Information	0.159**	0.089	0.002	0.009	0.127	0.108	0.016
	(0.068)	(0.091)	(0.072)	(0.087)	(0.088)	(0.086)	(0.042)
Training assignment × Information	-0.100	0.121	0.094	0.076	-0.051	-0.232*	-0.045
	(0.118)	(0.139)	(0.081)	(0.119)	(0.118)	(0.136)	(0.062)
Observations	579	587	589	579	587	588	425
Control Mean	4.516	4.542	5.329	4.539	4.439	4.523	0.295
No. clusters	65	65	65	65	65	65	57
PDS LASSO Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes. This table examines complementarity of training and information interventions. The specification is the same as Table 6 except that training intervention indicator and its interaction term with the information provision indicator are added.

D Details of Experiments and Survey Questions

D.1 Invitation to Program

With the enforcement of the revised Childcare and Family Leave Act, the environment surrounding today's child-rearing generation has been undergoing significant changes. Last year, the male childcare leave take-up rate reached a record high of 17%, and society is gradually shifting toward one in which it is normal for men to take childcare leave in order to balance work and family life. Still, many employees may feel uncertain or have questions such as: how should one take childcare leave, and what should be done during the leave period?

This training program will help participants understand the meaning of men taking childcare leave, recognize the hurdles to doing so, and learn the knowledge and know-how to overcome them. Through interactive exercises, participants will not only acquire knowledge but also reflect on what it means for themselves and their families.

We will also conduct training for managers. As organizations establish supportive systems and environments and as increasingly diverse employees with different backgrounds and circumstances work together, what kind of management is required today? This program explores the concept of "Ikuboss-style management," examining how to embody it and how to lead organizational growth. *Ikuboss* refers to a manager who supports subordinates' careers and work–life balance, while also ensuring organizational performance and enjoying both work and private life. Both training programs will be conducted by experienced instructors from NPO Fathering Japan, one of the leading organizations promoting male childcare leave in Japan:

- **Training for Employees:** (*instructor name*), Representative Director of NPO Fathering Japan. (*personal description*)
- **Training for Managers:** (*instructor name*), Board Member of NPO Fathering Japan. (*personal description*)
- **About NPO Fathering Japan:** (*organizational description*)

To encourage broad participation, both training sessions will be available as an archived recording for 10 days after the event. If you cannot attend live, please make sure to watch the archive. Please register for participation using the following URLs. To track participation rates, those who wish to view the archive are also requested to register:
[*Registration link to employee training*]
[*Registration link to manager training*]

D.2 Informed Consent (Baseline Survey)

This survey will be conducted by Evidence Studio and the University of Tokyo in cooperation with [ORGANIZATION NAME] for the purpose of conducting research on the promotion of men taking maternity leave. Your responses will be used as valuable data for research purposes. It will not be used for any other purpose. In particular, we will not disclose your answers in a way that identifies you personally, nor will we share them with the company. We will not disclose your answers in a way that personally identifies you, nor will we share them with the company, nor will they affect your personnel affairs.

Consent to Survey

[ORGANIZATION NAME], will ask you in advance whether or not you agree to participate in this survey (Research Project "Request for Participation in the Empirical Study to Promote Male Parental Leave Utilization") in the form of an internal questionnaire at [ORGANIZATION NAME]. Please complete the survey only if you agree. In addition, the handling of response data for this survey is as follows.

Anonymity of survey results

Responses will be sent directly to Evidence Studio. No personally identifiable response data will be shared with [ORGANIZATION NAME], including the person in charge. [ORGANIZATION NAME]'s personnel involved in this project will only review statistical data that has been processed into a form that does not identify you personally on the part of the researchers. Please be honest in your responses, as they will not be shared with everyone's supervisors or affect your personal evaluations.

Use of Survey Results

The results of the research will be published at conferences and in academic journals. Your name and other personal information will not be revealed.

(1) What is your survey ID (please check it carefully to make sure it is correct)?

(2) Have you agreed to cooperate with this survey?

☐ Agreed.

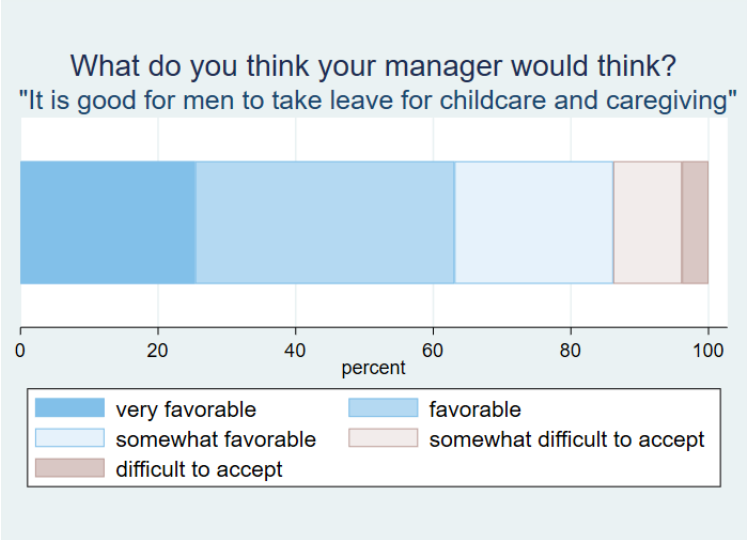
☐ Not agreed.

D.3 Information Provision (First Follow-up Survey)

Image shown to treatment group (Page 1)

In the previous survey, we asked how much you believe **your direct supervisors at your workplace** would personally agree with the statement, *"It is good thing for men to take leave for childcare and caregiving."*

Among non-managerial employees at [ORGANIZATION NAME], **63.1%** of respondents thought that their supervisors would be "very favorable" or "favorable" toward this opinion.



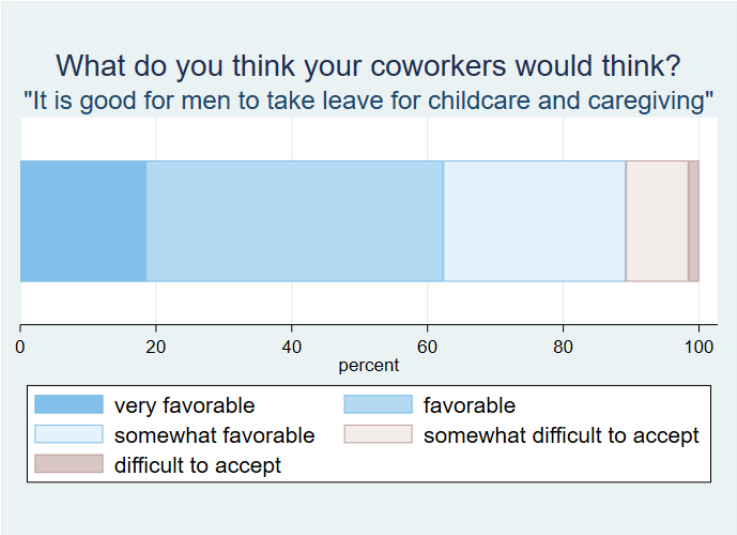
On the other hand, when responses from supervisors at [ORGANIZATION NAME] were analyzed, **94%** of them indicated that they "strongly agree" or "agree" with this view.



Image shown to treatment group (Page 2)

In the previous survey, we asked how much you believe **your colleagues at your workplace** would personally agree with the statement, *"It is good thing for men to take leave for childcare and caregiving."*

Among non-managerial employees at [ORGANIZATION NAME], **62.3%** of respondents thought that their colleagues would be "very favorable" or "favorable" toward this opinion.



On the other hand, when responses from colleagues in non-managerial positions at [ORGANIZATION NAME] were analyzed, **94.7%** of them indicated that they "strongly agree" or "agree" with this view.

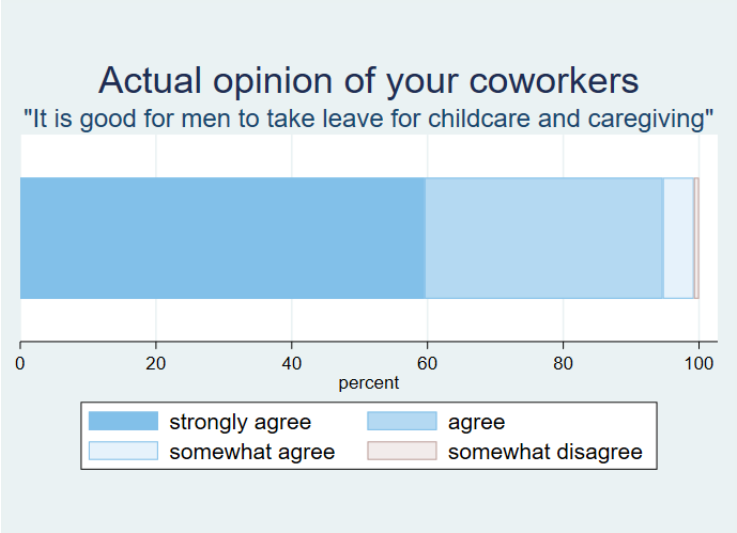


Image shown to treatment group (Page 3) and control group

On the following pages, you will find the questions for this survey. Some of the questions are the same as those in the previous survey, but please answer them based on your

current thoughts and circumstances.

☐ Agreed.

D.4 Questions about Beliefs

Own belief - Favorable toward PL uptake

How much do you *personally* agree with the following statement? Please select the most applicable answer.

		Response options					
		Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
(1)	*It is a good thing for men to take leave for childcare and caregiving.*	1	2	3	4	5	6

Own belief - PL benefits workplace

How much do you *personally* agree with the following statement? Please select the most applicable answer.

		Response options					
		Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
(2)	*Increasing take-ups of men's paternity leave can improve company operations and promote a collaborative workplace culture.*	1	2	3	4	5	6

Perception toward managers (colleagues)' belief- Favorable toward PL uptake

Notes - Because the Japanese phrasing becomes complex, this question omits the "It is a good thing . . ." clause. Instead, that nuance is embedded in the response options.

How much do you think your direct managers (colleagues) at your workplace would agree with the following statement? Please select the most applicable answer.

		Response options					
		Very favorable	Favorable	Somewhat favorable	Somewhat difficult to accept	Difficult to accept	Very unfavorable
(1)	*Men take leave for childcare and caregiving.*	1	2	3	4	5	6

Perception toward managers (colleagues)' belief- PL benefits workplace

How much do you think your direct managers (colleagues) at your workplace would agree with the following statement? Please select the most applicable answer.

		Response options					
		Strongly agree	Agree	Somewhat agree	Somewhat disagree	Disagree	Strongly disagree
(2)	*Increasing take-ups of men's paternity leave can improve company operations and promote a collaborative workplace culture.*	1	2	3	4	5	6

D.5 Questions about Hours

Weekly working hours

How many hours do you typically work in a week (including overtime)? Please also answer about your spouse (including de facto partners). If your spouse is not working, please enter "0".

- You (in hours per week): ☐ hours
- Your spouse (in hours per week): ☐ hours

Daily housework hours

How many hours per day on average do you spend on housework (excluding childcare)? Please answer separately for weekdays and weekends. Please also answer about your spouse (including de facto partners).

- You
  (Weekday): ☐ hours ☐ minutes
  (Weekend): ☐ hours ☐ minutes
- Your spouse
  (Weekday): ☐ hours ☐ minutes
  (Weekend): ☐ hours ☐ minutes

Daily childcare hours

How many hours per day on average do you spend on childcare (excluding sleeping time)? Please answer separately for weekdays and weekends. Please also answer about your spouse (including de facto partners).

- You
  (Weekday): ☐ hours ☐ minutes
  (Weekend): ☐ hours ☐ minutes
- Your spouse
  (Weekday): ☐ hours ☐ minutes
  (Weekend): ☐ hours ☐ minutes

D.6 Questions about paternity leave

Intention to take paternity leave

Do you plan to take childcare leave in the future?

☐ I am currently taking paternity leave

☐ I plan or hope to take paternity leave within the next six months

☐ I plan or hope to take paternity leave in the future, but not sure when

☐ I do not plan to take paternity leave, even if I have a (new) child

☐ I have finished raising children, do not plan to have or raise children, or am currently raising children but do not plan to take paternity leave in the future

☐ Not sure

☐ Prefer not to answer

Researched about PL

During the past month, have you consulted someone or searched websites or documents on your own regarding the parental leave system?

☐ Yes

☐ No

D.7 Questions about Workplace Management and Relationships

Number of workers for my task today

Imagine that one day you suddenly need to leave work early. At that time, how many coworkers would likely be able to take over your main job duties?

- ☐ persons

Number of workers for my task in one month

Imagine that three months from now, you have to take one month off from work. During that period, how many coworkers would likely be able to take over your main job duties?

- ☐ persons

Meeting hours

On average, how many hours per week do you spend in internal meetings or discussions?

- ☐ hours

Remote work days

How many days per week do you usually work remotely (telework)?

- ☐ days

Manager knows family composition

Does your direct supervisor know about your main family composition?

☐ Yes

☐ No

Talk about private matters with coworkers

During the past month, have you talked with coworkers other than your supervisor about personal matters (such as family circumstances, hobbies, or health)?

☐ Yes

☐ No

Psychological safety

The following questions ask about your coworkers and your direct supervisor. For each statement, please select the option that best applies to you.

[1. Always 2. Usually 3. Often 4. Sometimes 5. Rarely 6. Never]

(1) When I make mistakes, I am often criticized.

(2) I can point out negative issues or problems with my coworkers or direct supervisor, and they can do the same with me.

(3) My coworkers or direct supervisor sometimes reject others because they are different.

(4) It is safe to take risks in what I say or do with my coworkers or direct supervisor.

(5) There is an atmosphere that makes it difficult to ask my coworkers or direct supervisor for help.

(6) Some coworkers or my direct supervisor deliberately act in ways that undermine my work.

(7) When working with my coworkers or direct supervisor, I feel that my talents and skills are respected and utilized.

Variable construction: the total score is obtained by summing the responses to all 7 items. Items 1, 3, 5, and 6 are negatively worded and will be reverse-coded when calculating the total score.

Coworker relationships

The following questions ask about your coworkers and your direct supervisor. For each statement, please select the option that best applies to you.

[1. Always 2. Usually 3. Often 4. Sometimes 5. Rarely 6. Never]

(1) I have opportunities to express my opinions while working.

(2) I can rely on my coworkers to get my work done.

(3) My direct supervisor treats me with respect.

(4) My direct supervisor treats everyone fairly.

Variable construction: the total score is obtained by summing the responses to all 4 items.

Recommend firm to jobseeker

Would you recommend your company as a workplace to someone you know who is currently seeking a job?

☐ Yes

☐ No