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A diary study on location autonomy and employee mental distress: The mediating role of task-environment fit

Abstract

Purpose: This study examines the role of location autonomy (i.e., autonomy over where to work) in shaping employee mental distress during their working days.

Design/methodology/approach: 316 employees from six organizations in the UK provided data for 4082 half-day sessions, over ten working days. Random intercept modelling is used to analyze half-day data nested within individuals.

Findings: Results show that location autonomy, beyond decision-making autonomy and work-method autonomy, is positively associated with the perception of task-environment fit, which in turn, contributes to lower mental distress during each half-day session. Results of supplementary analysis also show that location autonomy can contribute to higher absorption, task proficiency, and job satisfaction via task-environment fit during each half-day session.

Originality: This study reveals the importance and uniqueness of location autonomy in shaping employees' outcomes, offering implications for how organizations can use it in their work-life flexibility policies to support employee mental health.

Keywords: location autonomy, task-environment fit, mental health, diary study

Employees' mental health problems have become a prevalent issue at work. World Health Organization's (2022) report shows that 15% of the world's working-age adults were estimated to experience a mental disorder. Mental health problems undermine employees' personal life and affect organizational productivity and healthcare costs for employers (e.g., Chisholm et al., 2016; World Health Organization, 2022). Organizations have recognized the importance of addressing mental health and introduced human resources policies to support employee well-being, such as offering mental health days as part of their leave policies, providing access to counseling services, and offering training to support employees with mental health concerns (e.g., Wu et al., 2021). While these human resources policies help employees to access support for mental health issues, organizations can use human resources policies to prevent employees from developing mental health issues. For example, Guest (2017) develops a bundle of well-being-oriented HRM practices (e.g., training and development, work design, employment security, and organizational support) for organizations to provide a positive social and physical environment to promote employee well-being. However, the focus on the bundles of HRM practices did not help us understand the function of a specific HRM practice (e.g., Kossek et al., in press), the knowledge we need to inform what to be included in the HRM bundles for employee well-being.

In this study, we zoom into location autonomy, or the autonomy for employees to choose where to perform their work. Location autonomy has long been offered as a work-life flexibility policy (Kossek et al., in press; Spivack and Milosevic, 2018). However, the mainstreaming of hybrid work practices following the COVID-19 pandemic has made it accessible to a much wide range of employees. While job autonomy is a resource for employees to cope with demands (e.g., Karasek, 1979; Wall et al., 1996) and is related to lower anxiety, stress, and exhaustion in a meta-analysis (Humphrey et al., 2007), studies so far mainly focus on other forms of autonomy, such as decision making autonomy (i.e., the freedom to make

decisions), work method autonomy (i.e., the freedom to determine which methods and procedures are utilized to complete the work) and work scheduling autonomy (i.e., the freedom to determine how to distribute working hours) (Humphrey et al., 2007; Morgeson and Humphrey, 2006). Although location autonomy has been discussed in the teleworking (i.e., working away from the office setting) research (e.g., Allen et al., 2015; Bailey and Kurland, 2002), it has not been directly measured, making it hard to evaluate its impact on employees. Moreover, teleworking mainly concerns with working away from the office setting and does not consider autonomy in choosing a workspace within an office (e.g., quiet areas, open-plan areas, or meeting rooms) (Davis et al., 2011; Wessels et al., 2019), which can also be a key factor in shaping employees' daily work activities. So far Spivack and Milosevic (2018) have measured location autonomy specifically and conducted a cross-sectional study of university staff and students (n = 201). They reported that location autonomy contributes to intrinsic motivation and enables individuals to choose work environments that can enhance productivity and well-being, indirect evidence showing the potential link between location autonomy and employee mental health. In this study, we seek to directly examine the role of location autonomy in shaping employee mental health and offer a theoretical account to understand how location autonomy could promote employee mental health.

Drawing on person-environment fit theory (e.g., Edwards et al., 1998; van Vianen, 2018) and empirical research (e.g., Furnham and Schaeffer, 1984), which shows that fit between a person and the environment can protect individual mental health, we argue that location autonomy allows employees to choose an environment that fits their job tasks, which prevents employees from experiencing mental distress. We, therefore, focus on task-environment fit, a specific dimension of person-environment fit (Bäcklander and Richter, 2022; Hoendervanger et al., 2019; Soriano et al., 2020) to explain why location autonomy can contribute to employee mental health. Empirically, we conducted a diary study by asking employees from different

organizations to report their location autonomy and mental distress during each half-day over ten working days. This diary study design helps us capture the employees' momentary experiences regarding their choice of work environment and their mental health within a working day. Bäcklander and Richter (2022, p.995) specifically call for diary methods to explore TE fit by suggesting that "Task–Environment fit is suitable to examine over time and at a short time scale, for example, using a diary method".

Our study brings three major contributions. First, deviating from an HRM bundling approach (e.g., Cooper et al., 2019; Guest, 2017), our study highlights the value of studying location autonomy as a separate, single concept to understand its role in protecting employee mental health. Second, by zooming in on location autonomy, we highlight the need to investigate location autonomy specifically and distinguish it from other types of workplace autonomy. Finally, our focus on task-environment fit highlights the importance of fit between tasks and the physical environment under the consideration of person-environment fit.

Person-Environment Fit Theory and Task-Environment Fit

Person-environment fit refers to the match between individuals (e.g., abilities, needs) and their wider environment (e.g. demands, supplies) (Edwards and Cooper, 1990; Kristof-Brown et al., 2005). At its heart, person-environment fit theories argue that the level of fit predicts individual outcomes better than the personal or environmental factors on their own and that fit (or misfit) is more influential than the levels or direction of the contributing factors. In work settings, person-environment fit theories suggests that when a worker's personal needs match the environment then positive outcomes result, e.g., increased job satisfaction, performance or mood (e.g., Caplan, 1987; Edwards and Cooper, 1990).

The concept of person-environment fit has also been applied to understand the reactions of workers in different office environments, most notably open-plan offices (Appel-Meulenbroek et al., 2019; Davis et al., 2011; Vischer, 1989; Wohlers and Hertel, 2017). The

emergence of Activity Based Workspaces (ABW) (offices providing a range of different workspaces suited to different activities) has led researchers to extend person-environment fit to incorporate the fit that workers gain by seeking out spaces appropriate to their task-at-hand (Appel-Meulenbroek et al., 2011) – task-environment fit (Wohlers and Hertel, 2017). Task-environment fit concerns the appropriateness of the physical space to support the current task, with the fit being influenced by the nature of the task, the environment and the individual's preferences and needs (Hoendervanger et al., 2019). Task-environment fit developed to accommodate the more diverse nature of the workspaces that workers may have access to and the opportunity that this provides individuals to develop a dynamic fit between their tasks and work environments throughout the day (Bäcklander and Richter, 2022). Recent empirical studies have applied task-environment fit to occupants of ABW offices and found support for task-environment fit being related to positive outcomes, including decreased distraction and increased workspace satisfaction (Gerdenitsch et al., 2018), performance (Soriano et al., 2020), team functioning (Bäcklander and Richter, 2022) and vitality (Wohlers et al., 2019).

Finally, person-environment fit scholars have suggested the perceived fit is superior in outcome prediction to actual congruence between fit constituents, especially when personal decisions are involved (Cable and Judge, 1997; Kristof, 1996). This is more important in the task-environment fit situation, as past research has shown that workers vary, in their preferences of workspaces (Maher and von Hippel, 2005), tendency of using different spaces (Appel-Meulenbroek et al., 2011), and in space-switching behaviors (Hoendervanger et al., 2016). Thus, the perception of task-environment fit is used in our study to avoid inaccurate presumptions.

Hypothesis Development

Location autonomy, task-environment fit and mental distress

Person-environment fit theory (e.g., Edwards et al., 1998; van Vianen, 2018) suggests that people tend to seek out environments that match their own characteristics or needs. This is the case because individuals "prefer consistency, wish to exert control over their lives and to reduce uncertainty, have a need to belong, and want happiness and life satisfaction"(van Vianen, 2018: 77). Individuals also actively seek opportunities to resolve misfit by changing their environment, leading to improved fit in its success (Follmer et al., 2018). Due to this general tendency, we argue that as for work environment specifically, individuals will seek fit between their tasks and work environment to master their work activities and deliver performance effectively. Having autonomy in choosing where to work therefore can thus contribute to higher task-environment fit for two reasons.

First, when employees have higher location autonomy, they can choose where to work based on tasks they have, resulting in higher task-environment fit due to their space use behavior. Several studies have provided findings to support this reasoning. A study reports that when workers autonomously use spaces that facilitate intensive communication for communicative tasks, they are likely to perceive task-environment fit (Wohlers et al., 2019). Similarly, research on activity-based working (ABW) and activity-based flexible offices (A-FO) suggested that the autonomy over different workspaces in an A-FO could result in better fit between task and space as employees are able to choose from various types of office spaces to best suit their job at hand (Appel-Meulenbroek et al., 2011; Wohlers and Hertel, 2017). In the context of office working, workers who are provided a variety of workspaces are seen to make self-determined use to improve task-environment fit (Eismann et al., 2022). Second, psychologically, it is also possible that individuals may justify their choice of environment post hoc as autonomous and attribute person-environment fit to the decision (Aday and Schmader, 2019). People rationalize automatic or unconscious decisions as volitional and freely chosen, either anticipatory or in retrospect (Cooper, 2007; Kay et al., 2002). This activated feeling of

authenticity in their perceived autonomy of situational selection can subjectively signal the perceived fit. As such, location autonomy will contribute to a strong sense of task-environment fit due to opportunities to use different spaces and associated psychological justification.

Next, we propose that a sense of task-environment fit can prevent employees from mental distress. Employees experiencing a higher sense of task-environment fit are less likely to experience mental distress at work because they do not need to worry about being in an inappropriate workspace that can interfere with their work, or which lacks essential equipment for carrying out their tasks. When there is a mismatch between the workspace and tasks to be performed, employees can feel anxious by not knowing whether they can deliver the tasks on time or at the expected standard due to the constraints of the space. They are also likely to feel depressed by seeing how their performance is undermined due to being in an inappropriate space for the tasks. As such, we expect that task-environment fit will prevent employees from experiencing mental distress at work. Following the conventional approach to capture psychological wellbeing at work (e.g., Meier et al., 2014), we use feeling depressed and anxious at work as an indicator for mental distress.

Hypothesis 1: Location autonomy is positively related to task-environment fit, which in turn, is negatively related to mental distress. Task-environment fit mediates the relationship between location autonomy and mental distress.

Hypotheses for supplementary examinations

As mentioned earlier, location autonomy has been rarely examined directly. While we aim to examine its role on employee mental health in this study, we also seek to provide more empirical evidence to assess its impact on employees. To extend research by Spivack and Milosevic (2018), we examine the function of location autonomy on employee attitudes and performance via task-environment fit from the same person-environment fit perspective. We

focus on absorption and task proficiency as indicators of work attitudes and job performance respectively.

Absorption at work is a cognitive state of engagement (Fleck and Inceoglu, 2010), having full concentration on a task and the sense that time has moved quickly (Bakker et al., 2008). Location autonomy can contribute to absorption via task-environment fit because employees can avoid distractions and interruptions (Zamani and Gum, 2019). They do not need to spend time dealing with demands and requests from others in the same environment that are not relevant to their tasks. Employees do not need to find ways to accommodate the work environment before working on their tasks when they work in an environment that fits their work activities. Empirically, Soriano et al. (2021) reported that office type–work pattern fit, a specific form of task-environment fit between work pattern (defined as task complexity and interactivity required) and office space, is positively related to flow experience indicated by being engaged and focused. In sum, we expect that location autonomy can contribute to task-environment fit, which in turn, contributes to higher levels of absorption.

Hypothesis 2: Task-environment fit mediates the relationship between location autonomy and absorption.

Location autonomy can contribute to task proficiency (i.e., performance on core tasks that employees are required to complete) (Griffin et al., 2007) via task-environment fit. The positive link between task-environment fit and task proficiency is a result of the environment facilitating key work behaviours in specific locations, for example, collaboration is easier within accessible, open spaces (Zamani and Gum, 2019). Supporting this reasoning, within a working sample, a greater level of fit in a new office promoted higher performance (Bankins et al., 2021), while Hoendervanger et al. (2019) found that task-environment fit promoted performance on a cognitive task within a population of students in virtual reality simulations.

Soriano et al. (2021) reported that office type–work pattern fit contribute to in-role performance indirectly via flow experience.

Hypothesis 3: Task-environment fit mediates the relationship between location autonomy and task proficiency.

Finally, to offer more evidence on the link between location autonomy and wellbeing at work, we additionally include job satisfaction, "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke, 1976: , p. 1304), as a positive indicator. It captures the cognitive element of psychological wellbeing (Diener et al., 2003) but in a job-related context (Warr, 1999). Job satisfaction is engendered when employees reduce the gap to achieve what they seek to accomplish (Locke, 1969; Locke, 1976). We propose that location autonomy can contribute to job satisfaction via task-environment fit. This is the case because employees are likely to engage in and deliver the task in the space where they are in and enjoy the positive experiences and achievement from the work activities. Employees who are in the right place to perform tasks they need to accomplish (i.e., experiencing higher task-environment fit) will experience higher job satisfaction because they can deliver the tasks and achieve the goal more easily.

Hypothesis 4: Task-environment fit mediates the relationship between location autonomy and job satisfaction.

Method

Sample and Procedure

We invited employees in six UK organizations to complete the diary surveys between October and November 2021. A time when each organization encouraged hybrid working and a return to the office. Three organizations were from the private sector (one each from healthcare, construction and consultancy) and three from the public sector (local government and healthcare). Four organizations employed less than 500 individuals, one employed around

7,000 in the UK and the last employed over 15,000. Access was granted to selected departments where employees occupied job roles consisting of desk or office-based work, allowing for varying degrees of location autonomy across the sample. No frontline workers were included in the present study, and there were no legal restrictions for working on site or in an office. We invited employees within these departments or teams to take part via internal emails and adverts. The diary period lasted 10 working days, with participants receiving email reminders at 11am and 4pm to complete a survey. Participants received a £15 shopping voucher upon completion of the diary period. Our final sample consisted of 316 employees (male: 136, female: 178; third gender: 2) from six organizations (ranged from 26 to 79 employees from each organization). They altogether provided data for 4082 half-day sessions. The mean age is 38.47 (range 19 to 64; SD = 10.66). They completed between one and 20 surveys. Among those 316 employees, 228 participants provided data over all 10 days.

Measures

Within-individual level variables. At each half-day survey, participants indicated their *location autonomy* "Were you able to choose where you worked in the last few hours?" (1 = yes, 0 = no). They then rated agreement to three items on a scale from 1 (strongly disagree) to 5 (strongly agree): *task-environment fit:* "My current working space is suitable for the requirements of my current job tasks" (Hoendervanger et al., 2019: , adapted to be applicable across work and home environments) and *mental distress* on two items, depressed and anxious, based on their experiences over the last few hours (from 1 = very rarely or never to 5 = very often or always). A mean score of the two items was created to indicate mental distress because the two ratings were highly related (r = .53).

For controls, we included: *time* (i.e., 0 = morning; 1 = afternoon); *planned work:* "Considering the job tasks you've completed over the last few hours, were they mostly planned or unplanned/unscheduled?" (1 = not planned at all; 5 = fully planned); *decision-making*

autonomy: "In the last few hours, were you able to decide what job activities or tasks you completed?" (Morgeson and Humphrey, 2006) and; *work-method autonomy:* "In the last few hours, were you able to decide how you completed job activities or tasks?" (Morgeson and Humphrey, 2006) (both measured from 1 = not at all to 5 = completely). We asked participants to report their *physical comfort* with the agreement: "Over the last few hours, I have felt physically comfortable within my working location" on a scale from 1 (strongly disagree) to 5 (strongly agree). Finally, we asked participants to report their *workplace* by indicating whether they were working in office (=1), or home and other places (=0), during each half-day session.

We measured variables for supplementary analysis, including *absorption:* "I was immersed in my work" (Schaufeli et al., 2019), *task proficiency:* "I have fulfilled all of my job tasks/requirements" (Reizer et al., 2019) and *job satisfaction:* "Thinking of the last few hours, how satisfied are you with your job?" (from 1 = extremely dissatisfied to 5 = extremely satisfied).

Between-individual level variables. We included several control variables at the between-individual level, including gender (male, female, or third gender), age (in years), tenure (in years), education (1 = Primary Education; 2 = Secondary Education; 3 = A-Levels; 4 = Vocational Qualification; 5 = Undergraduate Degree; 6 = Postgraduate Degree; 7 = Doctorate Degree), managerial position (1 = yes, 0 = no), disability status (1 = yes, 0 = no), ethnic minority (1 = yes, 0 = no) and work types (1 = full-time; 0 = part-time).

Results

Hypothesis testing

Table 1 presents basic descriptive statistics. While we had three responses for gender and created two dummy variables altogether (see Table 1), we only included one dummy variable in analyses because the two dummy variables were highly correlated (r = .98). We estimated random intercept models using MIXED MODELS in SPSS to predict task-

environment fit and mental distress at the within-individual level. We used a maximum likelihood estimator for estimation and all models were tested using half-day data nested within individuals.

Table 2 presents the results of analyses in which we used control variables and location autonomy as predictors. We found that higher location autonomy (B = .09, S.E. = .03, $p < .01$) contributes to higher task-environment fit. Location autonomy, however, did not predict mental distress. Next, we used the same control variables, location autonomy and task-environment fit to predict mental distress. Table 3 presents the results. We found that higher task-environment fit contributes to lower mental distress (B = -.08, S.E. = .01, $p < .01$). We then calculated mediation effects of task-environment fit on the relationships between location autonomy and mental distress using the RMediation package developed by Tofighi and MacKinnon (2011), which estimates a mediation effect based on the distribution-of-the-product method. Results show that task-environment fit has a significant mediation effect on the relationships of location autonomy with mental distress (mediation effect = -.007, S.E. = .003, 95%CI = [-.013, -.002]), supporting Hypothesis 1.

Supplementary analyses

We conducted the same analysis with the other outcome variables. As shown in Table 2, location autonomy did not predict absorption, job performance or job satisfaction. As reported in Table 3, higher task-environment fit contributes to higher absorption (B = .17, S.E. = .02, $p < .01$), higher task proficiency (B = .10, S.E. = .02, $p < .01$) and higher job satisfaction (B = .14, S.E. = .01, $p < .01$). Task-environment fit has a significant mediation effect on the relationships of location autonomy with absorption (mediation effect = .015, S.E. = .005, 95%CI = [.005, .027]), task proficiency (mediation effect = .009, S.E. = .004, 95%CI = [.003, .017]), and job satisfaction (mediation effect = .013, S.E. = .004, 95%CI = [.004, .021]), supporting Hypothesis 2, 3 and 4.

Discussion

Our study makes several contributions. First, although location autonomy has been used as a work-life flexibility policy, studies on work-life flexibility policies typically examined it together with other policies under a broad conceptualization or within a policies bundle (Kossek et al., in press). By examining location autonomy specifically, we are thus able to demonstrate its value for organizations to promote employee mental health, which also provides evidence to support including location autonomy as an element within integrated well-being-oriented HRM practices. Moreover, our study offers a different account to explain why location autonomy can help protect employee mental health and contribute to other positive outcomes (i.e., absorption, task proficiency, and job satisfaction). Location autonomy, like other work-life flexibility HRM policies, are usually discussed from a boundary control perspective (e.g., Ashforth et al., 2000; Kossek et al., in press), as it helps employees to manage transitions between different roles and thus likely to prevent them from distress due to inter-role conflict (such as work vs. family roles). For example, employees having location autonomy are also likely to avoid stressors in balancing roles in different life domains, such as work and family duties, because they can decide where to work to help them better fulfill their duties across different roles. In contrast to this boundary control perspective, our study highlights that location autonomy can help prevent employee distress by increasing the fit between their tasks and the work environment, facilitating an intra-job-role transition across tasks and work environment.

Second, to job design research, our study highlights the need to consider location autonomy as an important, different type of workplace autonomy. We found that decision-making, work-method and location autonomy have differential predictive effects on different outcome variables in Table 2. In brief, location autonomy only predicts task-environment fit, while decision-making autonomy only predicts mental distress and job satisfaction, and work-

method autonomy predicts all outcome variables. This finding reveals that different forms of autonomy have their own unique effects on employee outcomes. As such, managers should consider how to design jobs with different levels of autonomy in different aspects to achieve specific focus. For example, our finding suggests that both work-method autonomy and location autonomy can help promote task-environment fit. We thus argue that the direct approach to promote task-environment fit is to allow employees to choose where they work so that they can match their tasks and work environment easily. However, if location autonomy is not feasible (e.g., limited office space, customer requirements, data confidentiality), allowing employees to determine work methods for their tasks can be an alternative approach to promote task-environment fit. Meanwhile, managers should not rely on granting more decision-making autonomy if the goal is to promote employees' task-environment fit.

Third, our study highlights the need to consider task-environment fit in human resources management practices. The perspective of person-environment fit and different concepts of fit (e.g., person-job fit) has been applied in human resources management research (e.g., Boon et al., 2011; Werbel and DeMarie, 2005), but task-environment fit has rarely been considered. Although task-environment fit dos not directly consider individual attributes, it can affect how individuals evaluate their person-job fit in two aspects. First, with regards needs-supplies fit (the fit between what a job provides and what the individual needs), task-environment fit could influence how employees evaluate their needs-supplies fit. For example, employees may perceive lower needs-supplies fit when they find that they cannot do their work effectively in a provided or assigned workspace. Second, within demands-abilities fit (the fit between the individual's knowledge, skills, and abilities and the demands of carrying out the job), task-environment fit could also play a role. For example, employees would perceive higher demands when completing tasks in workspaces that do not fit the tasks and would need to see if they are still capable of performing the tasks despite the unfavorable workspaces.

Accordingly, task-environment fit can contribute to creating better person-job fit specifically or person-environment fit broadly.

This study provides several insights for organizational practices. First, organizations should consider how they facilitate location autonomy across their workforce. While job autonomy has been recommended in the work environment for some time (e.g., Humphrey et al., 2007; Morgeson and Humphrey, 2006), our findings suggest that employees can also benefit specifically from autonomy over where they work. Nevertheless, we only observed an indirect, but not a direct effect, of location autonomy on mental distress via task-environment fit. The finding suggests that a sense of task-environment fit is needed for employees to enjoy the benefit of location autonomy on mental health. This means that granting location autonomy will not necessarily help employee mental health and other examined outcomes, if employees do not use such freedom to perform tasks in a work environment that fits better to the tasks. Hence, our study suggests that location autonomy can protect employee mental health and bring positive outcomes, but only when employees can utilize it to improve their task-environment fit.

Following the above point, we recognized that the perceived task-environment fit is likely to vary according to individual preferences, job roles, and services. This has implications for the way that organizations design policy and practice on aspects such as hybrid or remote working (Davis et al., 2022). We suggest that our findings might therefore lend themselves to 'freedom within a framework', rather than 'fixed rules'. Even in job roles and environments where location autonomy is possible, HR professionals will also need to work carefully to understand the wider trade-offs that offering location autonomy may necessitate. For instance, given its individualised nature, it is possible that employees who need to work together, may have different space preferences. Without careful management, this could lead to negative job

crafting behaviours (Tims et al., 2015), or have undesirable ramifications for the wider working environment and culture, for instance, by encouraging silo working (DeShon et al., 2004).

This study has several limitations. Our findings should be cross validated in a large, nationally representative sample for generalizability. Meanwhile, our study does not provide evidence supporting the casual relationships between variables. To establish casual effects of location autonomy on employee outcomes, experimental studies are required. We used single item measures to reduce participants' time burden and maximize response rates, as is typical in diary studies. Ideally, multiple item measures would be employed in future. In addition, participants reported all variables in each session, which can introduce common method bias. Future studies could include supervisor-report outcomes to avoid these biases. Finally, our study only observes the employees' perspective to understand their experiences of location autonomy and outcomes. Future studies are encouraged to examine cost and benefits of location autonomy from a manager's perspective to better understand how organization can better implement and utilize location autonomy.

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Table 1. Descriptive statistics and correlations among variables.

	M	SD	Correlations								
	Between-individual level		1	2	3	4	5	6	7	8	9
1. Age (years)	37.73	10.73	1	.03	-.01	-.14**	.10**	-.10**	.60**	.37**	-.18**
2. Gender 1 (male =1; female, or third gender = 0)	0.44	0.50		1	-.98**	.07**	-.12**	-.06**	.09**	.06**	.22**
3. Gender 2 (female =1; male, or third gender = 0)	0.55	0.50			1	-.08**	.09**	.06**	-.08**	-.04**	-.23**
4. Education [a]	5.31	1.10				1	.04**	.07**	-.13**	.11**	-0.02
5. Disability (yes = 1; no = 0)	0.08	0.28					1	.02	-.05**	-.05**	-0.03
6. Ethnic minority (yes = 1; no = 0)	0.06	0.24						1	-.12**	-.05**	.07**
7. Tenure (years)	7.20	7.49							1	.31**	-.20**
8. Manager (yes = 1; no = 0)	0.42	0.49								1	-.08**
9. Work type (full-time = 1; par-time = 0)	0.86	0.35									1
	Within-individual level										
10. Time (morning = 0; afternoon = 1)	0.48	0.50									
11. Workplace (office =1; home or others = 0)	0.27	0.44									
12. Comfort	4.34	0.86									
13. Decision-making autonomy	3.84	1.14									
14. Work-method autonomy	4.09	1.06									
15. Planned work	3.80	0.89									
16. Location autonomy	0.87	0.40									
17. Task-environment fit	4.44	0.78									
18. Absorption	3.95	0.93									
19. Job satisfaction	4.09	0.80									
20. Task proficiency	3.78	1.02									
21. Mental distress	1.55	0.75									

* $p < .05$, ** $p < .01$. Correlations in upper triangular are correlations at the between-individual level (n = 316, except for mental distress, n = 315 due to a missing value from a participant) among all variables. Within-individual level variables (n = 4082, except for mental distress, n = 4072 due to missing data on 10 sessions from different participants) were aggregated to the between-individual level for the calculation. Correlations in lower triangular are correlations among variables at the within-individual level only.

[a] Education: 1 = Primary Education; 2 = Secondary Education; 3 = A-Levels; 4 = Vocational Qualification; 5 = Undergraduate Degree; 6 = Postgraduate Degree; 7 = Doctorate Degree.

Table 1. Descriptive statistics and correlations among variables (cont.)

	Correlations											
	10	11	12	13	14	15	16	17	18	19	20	21
1. Age (years)	.01	-.02	.08**	.15**	.15**	-.03*	.09**	.09**	.25**	.02	-.04**	-.09
2. Gender 1 (male =1; female, or third gender = 0)	-.01	.14**	-.11**	.01	.05**	.03	-.02	-.10**	.00	-.03*	-.00	-.07
3. Gender 2 (female =1; male, or third gender = 0)	.01	-.13**	.12**	-.01	-.04**	-.04**	.02	.11**	.02	.02	.02	.06
4. Education [a]	.00	-.03	-.10**	-.02	-.01	.02	.12**	-.07**	-.02	-.08**	-.05**	-.01
5. Disability (yes = 1; no = 0)	.01	-.03	-.07**	-.03	-.03*	.02	-.14**	-.01	.00	.04*	.05**	.00
6. Ethnic minority (yes = 1; no = 0)	.01	.03	.08**	.04*	.06**	.03*	-.07**	.07**	.00	.01	.08**	-.01
7. Tenure (years)	.00	-.07**	.02	.11**	.11**	-.08**	.06**	.00	.07**	.00	-.07**	-.06
8. Manager (yes = 1; no = 0)	.02	.03	-.04**	.06**	.10**	.00	.04*	-.05**	.13**	.03*	-.07**	-.02
9. Work type (full-time = 1; par-time = 0)	.01	.06**	.01	.02	.02	.10**	-.05**	-.02	-.05**	-.01	.07**	.01
10. Time (morning = 0; afternoon = 1)	1	--	--	--	--	--	--	--	--	--	--	--
11. Workplace (office =1; home or others = 0)	.00	1	-.01	-.10**	-.03	-.04**	-.05**	-.09**	.05**	.00	-.06**	.00
12. Comfort	-.01	-.02	1	.23**	.29**	.19**	.10**	.74**	.35**	.37**	.35**	-.34**
13. Decision-making autonomy	-.01	-.05**	.16**	1	.85**	.49**	.30**	.24**	.26**	.37**	.27**	-.21**
14. Work-method autonomy	.00	-.03*	.18**	.73**	1	.39**	.25**	.31**	.30**	.38**	.27**	-.24**
15. Planned work	-.02	.02	.08**	.29**	.20**	1	.10**	.12**	.21**	.31**	.32**	-.14*
16. Location autonomy	-.01	-.03	.10**	.21**	.19**	.03	1	.06**	.04*	.06**	-.07**	-.03
17. Task-environment fit	.01	.07**	.49**	.16**	.20**	.07**	.07**	1	.41**	.40**	.37**	-.32**
18. Absorption	.01	.00	.21**	.15**	.20**	.20**	.02	.26**	1	.45**	.41**	-.33**
19. Job satisfaction	-.03	.02	.24**	.27**	.29**	.22**	.04*	.29**	.37**	1	.37**	-.49**
20. Task proficiency	.03	-.03	.19**	.18**	.18**	.25**	-.03*	.22**	.34**	.31**	1	-.30**
21. Mental distress	.01	.00	-.22**	-.17**	-.19**	-.12**	.00	-.24**	-.26**	-.42**	-.27**	1

* $p < .05$, ** $p < .01$. Correlations in upper triangular are correlations at the between-individual level (n = 316, except for mental distress, n = 315 due to a missing value from a participant) among all variables. Within-individual level variables (n = 4082, except for mental distress, n = 4072 due to missing data on 10 sessions from different participants) were aggregated to the between-individual level for the calculation. Correlations in lower triangular are correlations among variables at the within-individual level only.

[a] Education: 1 = Primary Education; 2 = Secondary Education; 3 = A-Levels; 4 = Vocational Qualification; 5 = Undergraduate Degree; 6 = Postgraduate Degree; 7 = Doctorate Degree.

Table 2. Coefficients of random intercept models (n = 4082).

Independent/Dependent variables	Task-environment fit		Mental distress [b]		Absorption		Task proficiency		Job satisfaction	
	B	S.E.	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Intercept	2.46	0.18	2.50	0.26	1.79	0.23	2.29	0.30	2.85	0.24
Between-individual level predictors										
Age (years)	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
Gender 2 (female = 1; male, or third gender = 0)	.06	.05	.10	.07	.01	.06	.06	.08	.02	.06
Education [a]	-.01	.02	-.01	.03	.01	.03	-.04	.03	-.03	.03
Disability (yes = 1; no = 0)	.02	.08	.01	.12	-.06	.10	.10	.13	.11	.11
Ethnic minority (yes = 1; no = 0)	.02	.09	-.03	.13	-.01	.11	.05	.15	-.06	.12
Tenure (years)	.00	.00	.00	.01	-.01	.00	-.01	.01	.00	.01
Manager (yes = 1; no = 0)	-.06	.05	.01	.07	.09	.06	-.07	.08	.05	.07
Work type (full-time = 1; part-time = 0)	-.04	.06	.04	.10	-.09	.08	.07	.10	.01	.09
Within-individual level predictors										
Time (morning = 0; afternoon = 1)	.02	.02	.01	.01	.02	.02	.08**	.02	-.03	.02
Workplace (office = 1; home or others = 0)	.23**	.02	-.04*	.02	-.03	.03	-.02	.03	.07**	.02
Comfort	.34**	.01	-.08**	.01	.15**	.02	.10**	.02	.11**	.01
Decision-making autonomy	.01	.01	-.02*	.01	-.03	.02	.03	.02	.06**	.01
Work-method autonomy	.06**	.02	-.03**	.01	.13**	.02	.06**	.02	.09**	.02
Planned work	.02	.01	-.06**	.01	.20**	.02	.21**	.02	.10**	.01
Location autonomy	.09**	.03	.03	.03	-.04	.04	-.02	.04	-.03	.03
Random effects										
Residual	.35	.01	.21	.01	.57	.01	.55	.01	.30	.01
Intercept	.11	.01	.33	.03	.19	.02	.37	.03	.27	.02

* $p < .05$, ** $p < .01$.

[a] Education: 1 = Primary Education; 2 = Secondary Education; 3 = A-Levels; 4 = Vocational Qualification; 5 = Undergraduate Degree; 6 = Postgraduate Degree; 7 = Doctorate Degree.

[b] Analysis of mental distress were based on 4072 sessions due to missing data on 10 sessions from different participants.