

Data Observer

Joachim Gerich, Natalie Herdegen, Andreas Koch, Martin Krocze^{*},
Philipp Kugler, Sophie-Charlotte Meyer, Mella Perleberg and
Jochen Späth

A Factorial Survey on Sickness Presenteeism

<https://doi.org/10.1515/jbnst-2025-0039>

Received July 16, 2025; accepted July 17, 2025

Abstract: We present new data from a factorial survey experiment on sickness presenteeism, collected as a follow-up to the 2024 BIBB/BAuA Employment Survey – a representative survey of the German workforce. The factorial survey uses hypothetical scenarios to examine how employees decide between going to work, calling in sick, or working from home when experiencing illness. Scenarios systematically vary dimensions such as symptom severity, contagiousness, attendance pressure, and workload. Sub-experiments address performance pressure and period pain presenteeism. The dataset also includes measures on motivational drivers and workday adjustments, providing detailed, causal insights into sickness-related decision-making in contemporary work environments.

Keywords: factorial survey; sickness presenteeism; survey experiments

JEL Classification: C81; I12; J22

1 Introduction

While there has been a vast amount of research on the predictors and consequences of absenteeism behavior, the opposite – sickness presenteeism – is still in need of further research. Sickness presenteeism, defined as working in the state of ill-health

***Corresponding author: Martin Krocze^{*}**, Institut für Angewandte Wirtschaftsforschung (IAW) e.V. an der Universität Tübingen, Schaffhausenstr. 73, 72072 Tübingen, Germany,
E-mail: martin.krocze@iaw.edu

Joachim Gerich, Johannes Kepler Universität Linz, Altenberger Straße 69, 4040 Linz, Österreich

Natalie Herdegen, Andreas Koch, Philipp Kugler and Jochen Späth, Institut für Angewandte Wirtschaftsforschung (IAW) e.V. an der Universität Tübingen, Schaffhausenstr. 73, 72072 Tübingen, Germany. <https://orcid.org/0000-0001-5355-6094> (J. Späth)

Sophie-Charlotte Meyer and Mella Perleberg, Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (BAuA), Friedrich-Henkel-Weg 1-2, 44149 Dortmund, Germany

(Ruhle et al. 2019) has been found to be associated with negative consequences for both individuals and organizations. While some recent studies also point to positive aspects of sickness presenteeism, for example by avoiding a pile-up of work, reduced feelings of guilt or the maintenance of work-related self-efficacy (Karanika-Murray and Biron 2020; M. Wang et al. 2022; Lohaus et al. 2020; Biron et al. 2022), there is overwhelming evidence that working despite illness can have negative health consequences for employees (e.g. Bergström et al. 2009; Skagen and Collins 2016; Taloyan et al. 2012; Kivimäki et al. 2005; Demerouti et al. 2009) and may also entail negative economic consequences for organizations due to ego-depletion, productivity loss, contagion of diseases and increased sickness absence rates (for an overview, see Johns 2010; Rivkin et al. 2022; Ruhle et al. 2019). Nevertheless, previous studies demonstrate that sickness presenteeism is a common behavior among employees (Lohaus and Habermann 2019). However, the decision process between sickness absence and sickness presence of individuals faced with health complaints remains understudied, mostly because it is difficult to grasp empirically. With the rise of flexible work arrangements, this complex decision-making process has been extended by another option for many employees, i.e. working from home in case of illness, also called virtual sickness presenteeism (Eurofound 2020) or workahomeism (Brosi and Gerpott 2022). Virtual presenteeism is also discussed as an emerging form of “hidden sickness absence” where individuals avoid to call in sick to bypass expected negative impressions associated with sickness absence (Fiorini 2024; Ruhle and Schmoll 2021).

Previous studies often rely on cross-sectional data and convenience samples, which limits the generalizability of the results and precludes causal inference. Moreover, many studies are based on small samples drawn from specific occupational groups, such as hospital staff (Rivkin et al. 2022). Survey-based approaches typically use self-reported, retrospective data with long recall periods (e.g. up to 12 months) to capture sickness presenteeism making them prone to recall bias and thereby undermining the reliability of the results. In addition, relying solely on prevalence rates is insufficient to understand decision-making processes, as sickness presenteeism is mostly positively correlated with sickness absence, while both are strongly negatively associated with health status (Gerich 2015). Scholars have also emphasized that decisions concerning sickness absence or presence is not static but situation dependent. Individuals are assumed to seek for an “equilibrium” between performance, reputation, relational needs and health demands (Ruhle et al. 2019; Karanika-Murray and Biron 2020). To the contrary, the experimental design of our factorial survey addresses many of these limitations. It not only allows to simulate sickness-related decision-making across standardized scenarios, but also enables us to isolate causal factors that are often confounded in observational studies (Auspurg and Hinz 2015).

In light of previous research, this paper introduces a multifactorial survey (vignette design), to study the decision-making process and to identify different (individual and contextual/organizational) determinants of (virtual) sickness presenteeism. Specifically, respondents were shown different hypothetical scenarios where they wake up in the morning feeling unwell and then need to decide whether they would go to work, call-in sick, or work from home (if their job offers this possibility). Implementing this multifactorial survey as a follow-up survey of the BIBB/BAuA Employment Survey 2024 – a cross-sectional telephone survey representative of the German working population (Gensicke et al. 2024) – ensures access to a large and diverse sample of employees with many relevant background characteristics.

The selection of determinants (i.e. vignette dimensions) cover aspects that have been shown to be important factors in previous studies (for overview, see Miraglia and Johns 2016) and that can be credibly conveyed in the hypothetical scenarios, i.e. are easy to imagine for all respondents. More specifically, the dimensions cover variation in the severity of sickness and symptoms, contagiousness, attendance pressure, team cohesion, colleague's workload, as well as the weekday and the weather. An information treatment was also considered in the main experiment, where a random sample of participants was informed about the negative health-related consequences of sickness presenteeism.

We also conducted further sub-experiments for specific groups of employees. First, we conducted a sub-experiment aimed at respondents working in projects. In this subsample, we analyze the role of increasing use of performance management practices – such as goal setting and tight deadlines – on presenteeism decisions (Miraglia et al. 2025; Rivkin et al. 2022). Second, we aim to shed light on period pain presenteeism among females, i.e. working when experiencing period pain. In all vignette scenarios we asked respondents about their associated intention to go to work, call in sick or work from home (if possible).

Additional survey-based indicators were used for some vignette situations to collect data on possible adjustments that participants may consider during their workday (such as working less hours or postpone more complex tasks) when they opt for sickness presence or virtual presenteeism. As the mere information regarding participants' decision behavior gathered through the vignette design is not informative with respect to the underlying motives of these decisions, we included survey questions following the vignettes that ask for the relevance of different motive dimensions behind respondents' choices – such as avoidance or approach motives (Y. Wang et al. 2018; L. Lu et al. 2013; Ma et al. 2018; Van Waeyenberg 2023).

2 Design of the Factorial Survey

We conducted three factorial survey experiments to analyze the determinants of working while sick (sickness presenteeism). In each experiment, respondents were presented with hypothetical scenarios in which they wake up feeling unwell. These vignettes varied both symptoms described and contextual factors. Respondents were then asked whether, in the given scenario, they would go to work, stay home, or work from home (if their job offers this possibility). This experimental design enables a comprehensive analysis of the determinants of sickness presenteeism as well as the underlying mechanisms behind these decisions.

Figure 1 summarizes the design of the survey, which consisted of three distinct experiments: (1) a **main experiment** conducted with a broad sample of respondents, (2) an experiment aimed at analyzing the role of career ambitions, targeted at **highly educated respondents primarily working in projects**, and (3) an experiment focused on **women between the age of 18 and 50 to examine the impact of menstrual discomfort**. For each of the three experiments we designed different vignettes. In experiments (1) and (2), a subgroup of respondents randomly received additional information about the potential health and career consequences of their choices. Table A 1 in the online appendix displays the generic vignettes. Each respondent evaluated 10 vignettes regarding her/his work attendance decision.

Building on the experimental setup, the vignettes were designed in a way that the characteristics (dimensions) are statistically independent from one another in

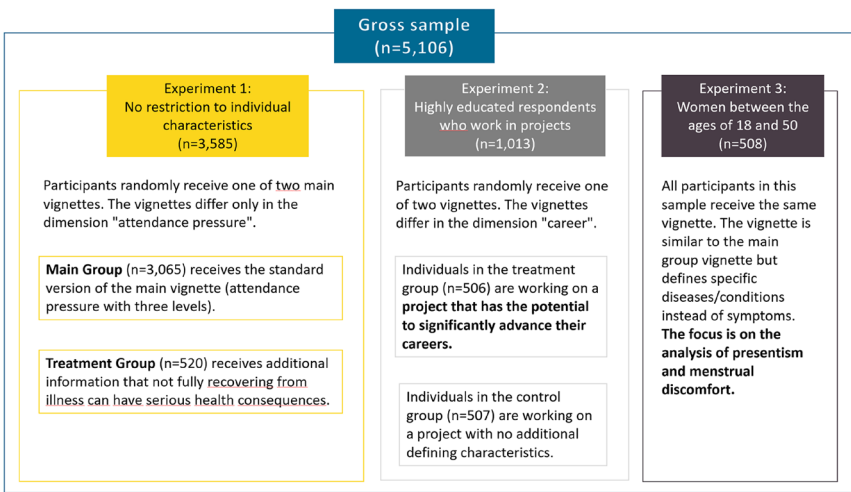


Figure 1: Survey design.

order to facilitate causal analyses. To ensure orthogonality of the vignette dimensions, we drew a D-efficient vignette sample from the full factorials (vignette universe, see Auspurg and Hinz 2015). To ensure identification of all relevant interactions, the design was optimized to maximize the orthogonality of selected interactions.

2.1 Experiment 1: Main Experiment

The goal of the main experiment ($n = 3,585$) was to address key determinants of sickness presenteeism behavior. The description of the vignettes included health conditions, job characteristics, and other relevant context factors. From the numerous characteristics that could be considered from a theoretical perspective, we selected those that most employees could easily comprehend, and which respondents could presumably imagine as characteristics of their daily work routines. Table A 1 in the online appendix shows which vignette dimensions are considered in Experiment 1 (column “Exp. 1”) along with their operationalization. Combinations of factor levels shown in the right column constitute all conceivable vignette constellations. The setup of our main experiment allows us to separately identify all two-way interactions, three-way interactions between both dimensions that capture symptoms and all other variables, as well as a five-way interaction involving both symptom dimensions, team, colleagues’ workload, and individual workload. The realized vignette sample achieves a D-efficiency of 95.58 and reasonable independency of all vignette dimensions ($r \leq 0.03$; see Table A 3).

To study the effects of health information on sickness presenteeism behavior, an information treatment was presented to a randomly selected subsample of respondents in the main experiment. At the end of the vignette, this treatment group was informed that health experts have found that not recovering from illnesses can have serious health consequences. In total, 3,065 respondents were assigned to the main experiment without information treatment, and 520 respondents were assigned to the treatment group.

After completing all 10 vignettes, respondents who decided to work in the final vignette were asked additional questions regarding their last decision. They were asked to state whether and how they would modify their work behavior (e.g. reduce work hours, avoid or delegate complex tasks, or take medications) to accomplish work in that situation. They were also asked to what extent personal beliefs, career ambitions, and the well-being of others had influenced their decisions.

2.2 Experiment 2: Employees in Project-Oriented Jobs

For the second experiment ($n = 1,013$), only highly educated respondents working in a project-based environment were selected. The main objective of this sub-experiment was to analyze the role of career ambitions and tight deadlines for sickness presenteeism behavior. Table A 1 in the online appendix summarizes the dimensions and levels of the factorial survey setup (column “Exp. 2”). With the exception of attendance pressure and workload, this setup included the same dimensions as the main experiment (Exp. 1). In addition to the main experiment, an additional vignette dimension was included that described the current status of the fictional project the respondent was working on.

Moreover, half of the sample ($n = 506$) received an additional information treatment, stating that successful completion of the project could enhance their career prospects, whereas the other half ($n = 507$) did not receive this additional information.

The setup of the second experiment enabled the identification of the effects of each dimension separately as well as all two- and three-way interaction effects. The drawn vignette sample achieved a D-efficiency of 95.49 and reasonable independence of vignette dimensions was confirmed in the final sample ($r \leq 0.04$; see Table A 4).

After completing the final vignette, participants were asked to specify the type of project they had in mind during their evaluation. They were asked about their perceived role in the project’s success, whether the project had a strict, non-extendable deadline, and the assumed negative consequences of project failure on both the company’s financial situation and their own career. Additionally, they were asked whether the successful completion of the project would affect their career positively.

2.3 Experiment 3: Menstrual Discomfort and Presenteeism

The third experiment ($n = 508$) addressed the impact of menstrual discomfort on presenteeism behavior compared to other kinds of discomfort, targeting women aged 18 to 50 (cf. Table A 1 in the online appendix, column “Exp. 3”). Unlike the other setups, six symptom levels were included, two of which specifically addressed mild and severe menstrual discomfort. This allows for a direct comparison between menstrual discomfort and other types of symptoms (mild cold, severe cold, flu, and stomach pain). In addition to estimating main effects, this setup allows to identify all two-way interactions and the three-way interaction between symptoms, team, and colleagues’ workload. The realized vignette sample achieved a D-efficiency of 98.96

and reasonable independence of vignette dimensions was confirmed in the final sample ($r \leq 0.03$; see Table A 5).

After completing the vignettes, the participants were asked to assess the degree to which the discomforts presented in the vignettes, i.e. a mild cold, sever cold, flu, stomach pain and diarrhea, as well as menstrual complaints, affect them in form of standard survey items.

2.4 Standard Survey Part

Apart from the subgroup specific questions mentioned above, further questions were included in the survey for all respondents irrespective of the experimental group they were assigned to.

This part of the survey focused on sickness absences, work–life balance, and health-literacy. It also included questions on teamwork, recognition, and potential workplace harassment. Respondents were asked to assess their commitment to the organization, including job satisfaction, willingness to stay, and perceptions of job security and company stability. These questions capture both personal and professional characteristics. Table A 2 in the online appendix provides an overview of all characteristics included in the standard part of the survey.

3 Survey Conduction and Survey Population

The factorial survey (Knigge et al. 2025) was conducted as a follow-up survey of the BIBB/BAuA Employment Survey 2024¹ (Gensicke et al. 2024). The BIBB/BAuA Employment Survey is a representative telephone survey covering approximately 20,000 individuals in the labor force, jointly conducted by the Federal Institute for Vocational Education and Training (BIBB) and the Federal Institute for Occupational Safety and Health (BAuA). The cross-sectional data are collected every six years and target individuals aged 15 and older who work at least 10 h per week on a regular basis. For our follow-up survey, we included only dependent employees aged 18 or older from the main survey who had agreed to participate in a follow-up.

The survey was administered as a computer-assisted web interview (CAWI) by a market and social research institute (IFAK Institut GmbH & Co. KG). To assign respondents to one of the three experimental groups, a screening process first determined eligibility based on gender, age, education, and whether the respondent worked in projects. Eligible respondents were then randomly assigned to one of the

¹ For further information see: <https://www.bibb.de/en/2815.php>

experiments with assignment probabilities based on target sample sizes of each experiment and adjusted during the field phase. Priority was given to the main experiment, with six times as many participants assigned to it compared to the other experiments. The final realized sample size amounts to 5,106 individuals. The interviews lasted 18.7 min, on average, the median duration was 12 min.

The survey received ethical approval from the BAuA ethics committee (approval given on 30.04.2024, number: 084_2024). No external funding was received.

Table 1 compares the basic socioeconomic characteristics of respondents in the factorial survey to those in the BIBB/BAuA-ETB 2024. Sampling weights were developed to account for the study design and to closely calibrate the study data to the BIBB/BAuA-ETB 2024.

Table 1: Sample description and comparison to external data.

Characteristics	Sickness presenteeism survey (unweighted)	Sickness presenteeism survey (weighted)	BIBB/BAuA-ETB 2024 (weighted)
Gender			
Male	56.0	53.8	52.6
Female	44.0	46.2	47.4
Nationality			
German	98.2	90.0	86.2
Non-German	1.8	10.0	13.8
No information provided	0.0	0.0	0.01
Age in groups			
18 to 30	5.0	17.1	18.7
31 to 40	15.9	23.9	23.8
41 to 50	23.1	21.9	21.9
51 to 64	53.0	35.0	33.5
65 and older	3.0	2.2	2.1
Professional status			
Worker	5.6	11.8	11.9
Employee	82.1	81.5	81.7
Civil servant	12.0	6.4	6.1
Target person undecided between “Worker” and “Employee”	0.2	0.3	0.3
Level of education			
Low	5.8	19.4	21.2
Medium	25.2	33.2	32.9
High	68.9	47.3	45.8
No information provided	0.1	0.1	0.08

Source: Sickness presenteeism survey and BIBB/BAuA-ETB 2024.

4 Data Preparation

In order to enable analyses of the vignette evaluations the responses to the vignettes were matched to the setup data on vignette level, additionally, variables were named and labeled in an instructive manner.

5 Research Potential

The factorial survey on sickness presenteeism offers various research opportunities. The three different experiments allow (causal) analysis of the factors influencing (virtual) sickness presenteeism, such as symptoms, team cohesion, attendance pressure, career ambitions, or the role of information about the health consequences of presenteeism on decision-making. A unique feature of the data is the potential to examine presenteeism behavior among women with menstrual discomfort, addressing an under-researched yet relevant phenomenon. Apart from the vignettes, the implementation of standardized questions, regarding job characteristics (e.g. commuting, work from home days, performance-related pay, commitment towards the organization) and regarding the broader context of the decision further enriches the scope of study, allowing for in-depth research applications. The data thus also allow analyzing heterogeneous effects across sociodemographic groups (e.g. gender, qualification, occupation) and stratified analyses tailored to specific research questions. In addition, the linkage with data from the BIBB/BAuA Employment Survey 2024 allows to include individual work situations and contextual characteristics. Beyond the primary focus on studying sickness presenteeism (and absenteeism), the data also support the exploration of other outcomes within the BIBB/BAuA Employment Survey 2024, substantially expanding the analytical potential of these data.²

6 Data Access and Documentation

For data documentation including the questionnaire see Knigge et al. (2025) (German only). The data can be requested for scientific purposes at the Federal Institute for Occupational Safety and Health (BAuA). The data are usually made available in Stata format (.dta). For data protection reasons, the data can only be used via a guest researcher workstation on the BAuA's premise in Dortmund. To apply for data

2 The BIBB/BAuA-ETB 2024 is expected to be made available as Scientific-Use-File by the BIBB in spring 2026.

access, please send an e-mail to the Research Data Center of the Federal Institute for Occupational Safety and Health (Forschungsdaten@baua.bund.de).

References

- Auspurg, Katrin, and Thomas Hinz. 2015. “Factorial Survey Experiments. 193 Vols.” In *Quantitative Application in the Social Sciences*, edited by John Fox. SAGE Publications.
- Bergström, Gunnar, Lennart Bodin, Jan Hagberg, Gunnar Aronsson, and Malin Josephson. 2009. “Sickness Presenteeism Today, Sickness Absenteeism Tomorrow? A Prospective Study on Sickness Presenteeism and Future Sickness Absenteeism.” *Journal of Occupational and Environmental Medicine* 51 (6): 629–38. (accessed June 23, 2023).
- Biron, Caroline, Maria Karanika-Murray, and Hans Ivers. 2022. “The Health-Performance Framework of Presenteeism: A Proof-of-Concept Study.” *Frontiers in Psychology* 13: 1029434.
- Brosi, Prisca, and Fabiola H. Gerpott. 2022. “Stayed at Home—But Can’t Stop Working Despite Being Ill! Guilt as a Driver of Presenteeism at Work and Home.” *Journal of Organizational Behavior Online first*: 1–18. <https://doi.org/10.1002/job.2601>.
- Demerouti, Evangelia, Pascale M. Le Blanc, Arnold B. Bakker, Wilmar B. Schaufeli, and Joop Hox. 2009. “Present but Sick: A Three-wave Study on Job Demands, Presenteeism and Burnout.” *Career Development International* 14 (1): 50–68.
- Eurofound. 2020. *Telework and ICT-Based Mobile Work: Flexible Working in the Digital Age, New Forms of Employment Series*. Unpublished manuscript. <https://www.eurofound.europa.eu/en/publications/2020/telework-and-ict-based-mobile-work-flexible-working-digital-age> (November 06, 2024)., last modified
- Fiorini, Luke Anthony. 2024. “Remote Workers’ Reasons for Changed Levels of Absenteeism, Presenteeism and Working outside Agreed Hours during the COVID-19 Pandemic.” *Sage Open* 14 (1). <https://doi.org/10.1177/21582440241240636>.
- Gensicke, Miriam, Alexandra Strauss, Nikolai Tschersich, and Sophie Tschersich. 2024. “BIBB/BAuA-Erwerbstätigenbefragung 2024: Methodenbericht.”
- Gerich, Joachim. 2015. “Sick at Work: Methodological Problems with Research on Workplace Presenteeism.” *Health Services & Outcomes Research Methodology* 15 (1): 37–53.
- Johns, Gary. 2010. “Presenteeism in the Workplace: A Review and Research Agenda.” *Journal of Organizational Behavior* 31 (4): 519–42.
- Karanika-Murray, Maria, and Caroline Biron. 2020. “The Health-Performance Framework of Presenteeism: Towards Understanding an Adaptive Behaviour.” *Human Relations* 73 (2): 242–61.
- Kivimäki, Mika, Jenny Head, Jane E. Ferrie, H. Hemingway, M. J. Shipley, J. Vahtera, et al. 2005. “Working while Ill as a Risk Factor for Serious Coronary Events: The Whitehall II Study.” *American Journal of Public Health* 95 (1): 98–102.
- Knigge, Charlotta, Beate Herdt-Born, Sören Winzer, Mella Perleberg, and Meyer Sophie-Charlotte. 2025. *Faktorieller Survey Zum Präsentismusverhalten 2024: Methodenbericht*. BAuA Bericht.
- Lohaus, Daniela, and Wolfgang Habermann. 2019. “Presenteeism: A Review and Research Directions.” *Human Resource Management Review* 29 (1): 43–58.
- Lohaus, Daniela, Wolfgang Habermann, I. El Kertoubi, and F. Roser. 2020. “Working while Ill Is Not Always Bad-Positive Effects of Presenteeism.” *Frontiers in Psychology* 11: 620918.

- Lu, Luo, Hui Yen Lin, and Cary L. Cooper. 2013. "Unhealthy and Present: Motives and Consequences of the Act of Presenteeism Among Taiwanese Employees." *Journal of Occupational Health Psychology* 18 (4): 406.
- Ma, Jie, Daniel P. Meltzer, Liu-Qin Yang, and Cong Liu. 2018. "Motivation and Presenteeism: The Whys and Whats." In *Presenteeism at Work*, edited by Cary L. Cooper, and Luo Lu, 97–122. Cambridge University Press.
- Miraglia, Mariella, and Gary Johns. 2016. "Going to Work Ill: A Meta-Analysis of the Correlates of Presenteeism and a Dual-Path Model." *Journal of Occupational Health Psychology* 21 (3): 261.
- Miraglia, Mariella, Silvia Dello Russo, and Gregor Bouville. 2025. "The Hazards of Performance Management: An Investigation into its Effects on Employee Absenteeism and Presenteeism." *Human Relations* 78 (7): 847–75.
- Rivkin, Wladislaw, Stefan Diestel, Fabiola H. Gerpott, and Dana Unger. 2022. "Should I Stay or Should I Go? the Role of Daily Presenteeism as an Adaptive Response to Perform at Work Despite Somatic Complaints for Employee Effectiveness." *Journal of Occupational Health Psychology* 27 (4): 411–25.
- Ruhle, Sascha, Heiko Breitsohl, Emmanuel Aboagye, V. Baba, C. Biron, C. Correia Leal, et al. 2019. "“To Work, or Not to Work, that Is the Question”–Recent Trends and Avenues for Research on Presenteeism." *European Journal of Work & Organizational Psychology* 29 (3): 344–63.
- Ruhle, Sascha, and René Schmoll. 2021. "COVID-19, Telecommuting, and (Virtual) Sickness Presenteeism: Working from Home while Ill during a Pandemic." *Frontiers in Psychology* 4501. <https://doi.org/10.3389/fpsyg.2021.734106>.
- Skagen, Kristian, and Alison M. Collins. 2016. "The Consequences of Sickness Presenteeism on Health and Wellbeing over Time: A Systematic Review." *Social Science & Medicine* 161: 169–77.
- Taloyan, Marina, Gunnar Aronsson, Constanze Leineweber, Linda Magnusson Hanson, Kristina Alexanderson, and Hugo Westerlund. 2012. "Sickness Presenteeism Predicts Suboptimal Self-Rated Health and Sickness Absence: A Nationally Representative Study of the Swedish Working Population." *PLoS One* 7 (9): e44721.
- Van Waeyenberg, Thomas. 2023. "Why Do Employees Attend Work Sick? the Assessment and Relevance of Opposite Presenteeism Motivations." *Journal of Occupational and Organizational Psychology* n/a (n/a) 97 (2): 536–54.
- Wang, Yanxia, Chih-Chieh Chen, Lu Luo, Robert Eisenberger, and Patricia Fosh. 2018. "Effects of Leader–Member Exchange and Workload on Presenteeism." *JMP* 33 (7–8): 511–23.
- Wang, Mengyuan, Chang-qin Lu, and Lu Luo. 2022. "The Positive Potential of Presenteeism: An Exploration of How Presenteeism Leads to Good Performance Evaluation." *Journal of Organizational Behavior*. <https://doi.org/10.1002/job.2604>.

Supplementary Material: This article contains supplementary material (<https://doi.org/10.1515/jbnst-2025-0039>).