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ARTICLE

Staying connected and feeling less exhausted: The autonomy benefits of after-hour connectivity

Ward van Zoonen[1,2] | **Jeffrey W. Treem**[3] | **Anu E. Sivunen**[2]

[1]Organizational Dynamics in the Digital Society, Erasmus University, Rotterdam, The Netherlands

[2]Department of Language and Communication Studies, University of Jyväskylä, Jyväskylä, Finland

[3]Moody College of Communication, University of Texas at Austin, Austin, Texas, USA

Correspondence

Ward van Zoonen, Organizational Dynamics in the Digital Society, Erasmus University, Burgemeester Oudlaan 342T, 3062PA, Rotterdam, The Netherlands.
Email: w.vanzoonen@essb.eur.nl

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Abstract

This study investigates the longitudinal relationship between after-hour connectivity, autonomy and exhaustion. In doing so, we seek to illuminate the role of individuals' connectivity to work in relation to their autonomy and well-being. We juxtapose different effective directions of the relationship between connectivity and autonomy to shed light on whether and how connectivity and autonomy are related to employees' well-being. This is important because research has both often problematized after-hour connectivity *and* suggested that connectivity is an inherent feature of contemporary workplaces that may benefit employees. In this study, we hypothesize that after-hour connectivity increases autonomy *and* that the autonomy to work anywhere and anytime leads to working everywhere all the time, thus increasing after-hour connectivity. We further shed light on whether this behaviour has negative consequences for employees' well-being or not. The three-wave survey study (N = 192) demonstrates that after-hour connectivity may operate as a resource that potentially empowers employees (increases autonomy). The freedom to work anytime, anywhere, does not itself increase after-hour connectivity. Notably, we demonstrate that connectivity is negatively related to emotional exhaustion, through increased autonomy.

KEYWORDS

after-hour connectivity, autonomy, exhaustion, resources and demands

Practitioner points

- Connectivity is not a bug to be fixed, but rather a feature to be better understood.
- After-hour connectivity may be utilized by employees to enhance their autonomy, leading to lower levels of exhaustion.
- Organizations are advised to provide training programmes to managers and employees to educate organization members and promote responsible after-hour connectivity.

After-hour connectivity has become a common feature of contemporary work (Kolb et al., 2012; Nurmi & Hinds, 2020) and refers to connectivity behaviours in which workers are attentive to incoming or outgoing communication with other organizational members and/or clients beyond standard business hours (e.g., outside the conventional 8 AM–6 PM; Nurmi & Hinds, 2020; Thörel et al., 2020). Research suggests that after-hour connectivity may yield positive and negative outcomes for organizations and individuals (Büchler et al., 2020; Hu et al., 2021; Ten Brummelhuis et al., 2021). For example, Patterer et al. (2021) demonstrate that connectivity in terms of personal smartphone use at work may have instrumental and social benefits and drawbacks. Although research has paid considerable attention to the implications of information and communication technology (hereafter; ICT) use for employee well-being (see Hu et al., 2021), more work is needed to understand how and why after-hour connectivity may affect well-being. This is important as after-hour connectivity is becoming increasingly common for workers and is often found to be overwhelming (Barley et al., 2011; Puranik et al., 2019; Sonnentag et al., 2018). As such, this study seeks to investigate the role of after-hour connectivity in relation to employee exhaustion.

In order to understand this relationship, we juxtapose different effective directions of the relationship between connectivity and autonomy. This is important because the interplay between autonomy and connectivity may present two distinct patterns underlying exhaustion. First, Mazmanian et al. (2013) concluded that technology creates an autonomy paradox where the use of mobile devices provides the ability to work anywhere anytime, but in practice often leads workers to work everywhere all the time. This would suggest that autonomy may increase connectivity, which can be experienced as overwhelming (Barley et al., 2011), thus increasing exhaustion. Alternatively, scholars have also noted that aspects of connectivity may increase perceived (communication) control leading to positive individual outcomes (Ten Brummelhuis et al., 2021). As such, after-hour connectivity may reduce exhaustion if employees are found to utilize their connectivity to exert greater control over their work (Birnholtz et al., 2012; Leonardi et al., 2010). These mixed empirical findings suggest that the relationship between connectivity, autonomy and employee well-being, in particular exhaustion, is neither uniform across workers nor stable across contexts. Hence, drawing on a longitudinal survey design this study investigates these contradicting relationships by juxtaposing different effective directions between after-hour connectivity and autonomy. In studying the longitudinal relationship between after-hour connectivity, autonomy and exhaustion, this study aims to make two contributions.

First, we seek to illuminate whether after-hour connectivity is the result of an agentic process in which connectivity behaviours emerge from the enactment of one's autonomy, or whether the ability to connect after hours is attenuating the autonomy of workers. This is crucial for our understanding of the implications of after-hour connectivity because it sheds light on whether after-hour connectivity may be a (rationalized) unhealthy work practice or an agentic process effective workers utilize to provide them more autonomy over their work in an economic environment that values service and responsiveness (Perlow, 2012), and in a global work context that requires boundary spanning (e.g., remote work conditions; Nurmi & Hinds, 2020). This is also important for understanding the relationship between after-hour connectivity and exhaustion because if connectivity helps employees by increasing autonomy, connectivity may operate as an important resource that may reduce exhaustion rather than a contemporary organizational challenge, that is wittingly or unwittingly enacted, and needs to be dealt with.

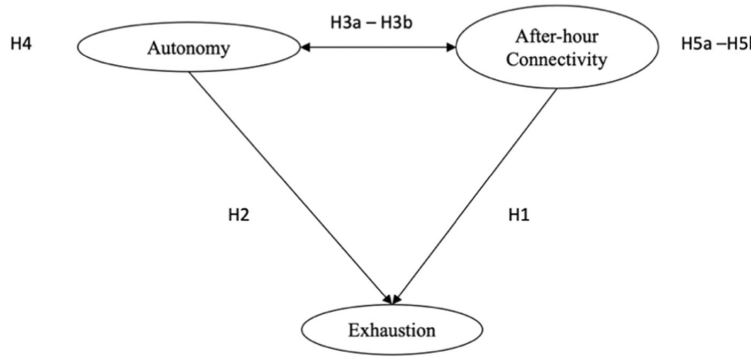

FIGURE 1 Hypothesized model. H4, H5a and H5b indicate that autonomy and after-hour connectivity may both operate as mediators in the relationship with exhaustion.

Second, we contribute to connectivity (Ten Brummelhuis et al., 2021), job design (Nurmi & Hinds, 2020) and boundary management literature (Boswell & Olson-Buchanan, 2007) by scrutinizing the psychological patterns associated with after-hour connectivity. Attention to relational work designs has steadily risen over the past few decades (Grant, 2007), suggesting that connectivity is an increasingly important feature of contemporary job designs (Nurmi & Hinds, 2020). However, this also raises the question of whether after-hour connectivity is the result of a workplace demand that employees address at their discretion, or whether after-hour connectivity is tethering employees to their work, including after hours. Understanding the relationship between connectivity, autonomy and well-being is increasingly important at times when boundaries between work and nonwork are particularly porous (van Zoonen et al., 2021). We specifically focus on connectivity behaviour that extends beyond the workday (e.g., Boswell & Olson-Buchanan, 2007; Büchler et al., 2020; Mazmanian et al., 2013), rather than connectivity during work (e.g., Sonnentag et al., 2018; Ten Brummelhuis et al., 2021). Overall, our study explores the research model presented in Figure 1.

THEORETICAL BACKGROUND

We situate our investigation of the relationship between after-hour connectivity and exhaustion within the conservation of resources theory (COR theory; Hobfoll, 1989). Theoretical approaches to recovery are particularly useful to understand after-hour connectivity as they allow connectivity to be viewed both as a recovery-promotive and recovery-prohibitive antecedent to exhaustion (Sonnentag et al., 2018). The relationship between connectivity and individual well-being outcomes is not uni-dimensional or uniform, in a large part because connectivity can be experienced as both a demand that workers must expend effort to fulfil or a resource that workers can appropriate in efforts to meet situated goals (Hu et al., 2021).

The COR theory (Hobfoll, 1989) has been an influential framework underpinning recovery research and theorizing of resources and demands for employees (Steed et al., 2021). It suggests that individuals seek to build, retain and maintain resources, and the threat to or the loss of resources can lead to stress-related outcomes such as exhaustion (Hobfoll et al., 2018). Specifically, COR suggests that employees may regenerate key resources that have been depleted by demands during work and nonwork hours (Steed et al., 2021). Conservation of resources theory suggests that after-hour connectivity may be stressful as it requires employees to expand resources and potentially lose valuable leisure time. However, the theory also allows for the possibility that connectivity can restore or sustain resources. For instance, when the investment of attending to work-related matters generates greater resources (e.g., generating greater autonomy to address other work demands), being connected after hours may present a positive opportunity, rather than a stressful experience (Day et al., 2019). The effectiveness of after-hour connectivity may depend on the extent to which it allows employees to meet their needs for autonomy.

After-hour connectivity and exhaustion

It is not the availability or presence of after-hour connectivity itself that causes potential negative consequences for the well-being of workers, but rather the ways connectivity can facilitate conditions, behaviours, demands or opportunities that conflict with individuals' goals. However, a growing body of literature suggests that after-hour connectivity might be detrimental to employee well-being (Büchler et al., 2020; Derks et al., 2014; Schlachter et al., 2018). Indeed, studies investigating connectivity behaviours, such as smartphone use after hours, have repeatedly shown ways after-hour connectivity may have adverse effects on well-being as it increases work–home interference (e.g., Derks & Bakker, 2014; Dery & MacCormick, 2012; Gadeyne et al., 2018) or presents barriers to detach from work or lead to sleep deprivation (e.g., Büchler et al., 2020; Derks et al., 2014; Hu et al., 2021; Lanaj et al., 2014). Furthermore, Ten Brummelhuis et al. (2021) found that although constant connectivity of workers led to higher performance outcomes, the experience of interruptions after work hours reduced individuals' feelings of control. Conversely, studies have demonstrated positive relationships between technology-assisted supplemental work (TASW) and employee engagement, while not confirming the presence of a detrimental impact of TASW on well-being—that is, exhaustion (Carvalho et al., 2021).

The espoused relationships between connectivity and physiological outcomes are mainly rooted in theories of recovery. Geurts and Sonnentag (2006, p. 482) define recovery as 'a process of psychophysiological unwinding after effort expenditure'. When connectivity is experienced after work hours as a demand that needs attention or attending to, such as an interruption of family or leisure time, it can be physically and mentally draining, and after-hour connectivity might prevent adequate recovery leading employees to experience psychological stress and exhaustion (Lanaj et al., 2014) as the necessary process of replenishment after hours might not occur (Steed et al., 2021). Carvalho et al. (2021) used the COR theory to suggest that the costs of constant connectivity (e.g., heightened expectations of availability and work–life balance) may override the benefits, thus leading to exhaustion. Although their study could not confirm this relationship, COR suggests that after-hour connectivity may be related to exhaustion as it requires employees to expand resources outside office hours.

H1a *After-hour connectivity is positively related to exhaustion from T1 to T2 and T2 to T3.*

Alternatively, scholars have also articulated the possibility that communication technology use after hours has positive individual outcomes such as increased job satisfaction (e.g., Diaz et al., 2012) or organizational identification (van Zoonen et al., 2020). This is in line with evidence that the connectivity common in contemporary work facilitates effective work practices and is simply a feature of modern work (Kolb et al., 2012; Nurmi & Hinds, 2020). Indeed, ICT use after hours may benefit worker well-being because it fosters feelings of accomplishment and productivity and is positively linked with job satisfaction (Reinke & Ohly, 2021). Although it is unclear whether these findings generalize to *after-hour* connectivity, in much knowledge work, connectivity may indeed provide employees with more flexibility and leeway that can benefit work outcomes (Van Laethem et al., 2018). Recent research recognizes the possibility that workers may engage in connectivity behaviours to effectively meet contemporary workplace demands (Nurmi & Hinds, 2020). Notably, Heissler et al. (2022) concluded that work-related ICT use after hours is triggered when employees face unfinished tasks, and consequently have difficulty detaching from work. They found that work-related ICT use did not impair individual levels of detachment challenging the assumption that after-hour ICT use should be classified as a stressor. Thus, we can also view after-hour connectivity as potential resource employees utilize to function effectively in today's global workplaces—that is providing employees more discretion in how, where and when they work—or whether after-hour connectivity is merely draining resources, as employees utilize their autonomy in restricting ways—that is engaged in after-hour connectivity. For instance, Carvalho et al. (2021) conclude that in line with the conservation of resources theory—that is the resource investment principle—TASW may improve well-being as it allows workers to progress and cope with work demands. Furthermore, Thörel et al. (2022) concluded in their

meta-analysis that extended availability to work 'was associated with more job involvement, work engagement as well as with higher job satisfaction'. (p. 405). Hence, we also hypothesize that:

H1b *After-hour connectivity is negatively related to exhaustion from T1 to T2 and T2 to T3.*

Autonomy and exhaustion

Scholars widely agree that autonomy is an important predictor of employee well-being (Bakker et al., 2011; Janz et al., 1997; Kossek et al., 2006). Research convincingly demonstrates that autonomy is positively related to occupational well-being, specifically, engagement (Bakker et al., 2007; Crawford et al., 2010; Mauno et al., 2007), while being negatively related to emotional exhaustion (Bakker & Demerouti, 2014, 2017; Demerouti et al., 2001; Maslach et al., 2001). From a conservation of resources, perspective autonomy can be viewed as an important resource that may help create stress resistance. Indeed, COR theory would suggest that the motivation to acquire (and maintain) autonomy-related resources would 'hold the greatest motivation and greatest impact on well-being' (Halbesleben et al., 2014, p. 1342). Hence, we assume:

H2 *Autonomy is negatively related to exhaustion from T1 to T2 and T2 to T3.*

Autonomy and after-hour connectivity

Of particular concern in evaluating whether after-hour connectivity operates as a resource is whether workers enact connectivity in ways that increase their autonomy, or the ways in which they can manage work goals. Job autonomy is defined as 'the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and determining the procedures to carrying it out' (Hackman & Oldham, 1975, p. 162). Research on connectivity in a work context argues that the growth of ICTs to conduct work may create an autonomy paradox that simultaneously increases and decreases perceptions of control over how, when and where work is completed (Day et al., 2019; Mazmanian et al., 2013). From a functional standpoint (after-hour), connectivity affords the opportunity for workers to transcend temporal and spatial boundaries at employees' discretion and thereby enables them to decide more freely when and where to work (Gruber et al., 2018). Workers are less restricted in how they access organizational information or with whom they can communicate (Dery & MacCormick, 2012). Indeed, accessibility characteristics of connectivity may boost perceptions of autonomy (Day et al., 2019; Ten Brummelhuis et al., 2021). Moreover, various studies have argued that employees may perceive their smartphones as important job resources facilitating flexibility and increasing autonomy over work tasks (Day et al., 2010; Van Laethem et al., 2018). These empirical findings suggest that in environments where workers have high levels of connectivity, they are likely to perceive greater individual autonomy. Hence, we posit that:

H3a *After-hour connectivity is positively related to autonomy from T1 to T2 and T2 to T3.*

Alternatively, flexibility to work anytime anywhere is found to increase employees' connectivity to work (Mazmanian et al., 2013), suggesting that autonomy may increase after-hour connectivity. In line with a gain spiral reflected in COR theory (Ten Brummelhuis & Bakker, 2012), resources may accumulate as employees utilize their autonomy to engage in work-related activities after hours. Indeed, one of the corollaries of COR suggests that 'as individuals gain resources, they are in a better position to invest and gain additional resources (a resource gain spiral)' (Halbesleben et al., 2014, p. 1336). In the context of our study, that would suggest that autonomy can be utilized by workers to invest and gain additional resources

(i.e., stay connected to work). After-hour connectivity can be viewed as a resource too as it has found to help employees meet work demands and benefit individual performance (Khalid et al., 2021) Hence, the question becomes whether autonomy can increase after-hour connectivity.

It is recognized that employees who experience autonomy make proactive changes in how they work to meet work demands and individual needs. Nurmi and Hinds (2020) suggest that this perspective aligns with connectivity research in that it refers to an agentic process within which workers have some degree of choice, which they utilize to meet the connectivity demands in contemporary work environments. The technologies used to connect to work after hours are literally in the hands of individual users. This means that questions of when and how much employees use such technologies to stay connected after hours is, at least partly, an issue of individual agency and autonomy (Dery et al., 2014). Kolb et al. (2012) suggest that employees use the agency afforded to them to make decisions about connectivity. Employees may use their freedom to either limit or expand their connectivity to work. In a work context that increasingly demands connectivity (Nurmi & Hinds, 2020), workers may choose to expand their connectivity. Given the possibility that perceived autonomy leads workers to increase after-hour connectivity, we offer the alternative hypothesis:

H3b *Autonomy is positively related to after-hour connectivity from T1 to T2 and T2 to T3.*

After-hour connectivity, autonomy and exhaustion

The proposed juxtaposition of different constellations of the relationships between autonomy and after-hour connectivity dictates the expected indirect mechanisms linking after-hour connectivity, autonomy and exhaustion. In other words, we can expect that if after-hour connectivity provides employees with more autonomy, connectivity may indirectly reduce exhaustion. However, if individual autonomy increases after-hour connectivity, this connectivity may either drain energy and increase exhaustion or help employees meet work demands and reduce exhaustion.

Conservation of resources theory provides insights into the ways in which resources may be used to protect against resources loss, recover from losses and gain resources (Hobfoll, 2001), as well as emphasizes the importance of resources for employee well-being and performance (Halbesleben et al., 2014). Hence, COR theory provides evidence for a gain spiral in which after-hour connectivity may trigger subsequent increases in autonomy and/or where autonomy results in subsequent increases in after-hour connectivity. If after-hour connectivity operates as a resource that may aid employees in gaining other resources (here autonomy), after-hour connectivity may reduce exhaustion through increased autonomy. This is in line with empirical findings in the context of communication technology use showing that autonomy was found to mediate the relationship between technology use and exhaustion, such that technology use increased perceptions of autonomy, and autonomy subsequently reduced exhaustion (e.g., Ter Hoeven et al., 2016; van Zoonen & Rice, 2017). In addition, Sardeshmukh et al. (2012) found that teleworking increased employees' autonomy, which in turn reduced exhaustion. Hence, we suggest that:

H4 *After-hour connectivity at time 1 is negatively related to exhaustion at time 3 through increased autonomy at time 2.*

However, the directionality of autonomy and after-hour connectivity merits further attention as autonomy may precede after-hour connectivity. This is important in part because the relationship between after-hour connectivity and exhaustion is less univocal than the relationship between autonomy and exhaustion. Connectivity can facilitate communicative behaviours that are perceived as resource-demanding and resource-empowering, and these perceptions can have implications for the ongoing willingness of individuals to engage in after-hour connectivity. After-hour connectivity may be a resource, or an unwanted by-product of the flexibility to work anytime and anywhere. Following the logic of theories of recovery, after-hour connectivity may operate as a demand that prevents recov-

ery and detachment, and therefore increases exhaustion (Büchler et al., 2020), or after-hour connectivity might operate as a resource that may lessen or forestall exhaustion and increase engagement. For instance, TASW has been found to represent a resource that contributes to an engagement state (Carvalho et al., 2021). In today's mediated work environment, after-hour connectivity may allow employees to engage in productive behaviours and effectively deal with work demands (Nurmi & Hinds, 2020). However, other studies have taken a resource-loss perspective arguing that if digital connectivity falls outside the capacity of personal resources such connectivity may be depleting and increase exhaustion (Ren et al., 2021). Hence, as after-hour connectivity can be experienced both as a demand requiring recovery and enacted as a resource that precludes recovery it is important to determine the consequences for workers. This has important implications for studying employees' agentic choices of connectivity (Nurmi & Hinds, 2020) as these individual choices may end up benefitting and harming employees' own well-being. Thus, we hypothesize:

H5a *Autonomy at time 1 is positively related to exhaustion at time 3 through increased after-hour connectivity at time 2.*
H5b *Autonomy at time 1 is negatively related to exhaustion at time 3 through increased after-hour connectivity at time 2.*

METHODS

Procedure

Data were collected at a large Scandinavian natural resources company. Operating at a global scale, the company produces, refines and markets natural resource products, as well as offers engineering services and production technologies. The company employs more than 3000 office workers that were eligible to participate in the study. The office workers used ICTs and mobile devices to complete and coordinate work tasks as well as communicate with colleagues and clients around the globe. The office workers consult in offering clients sustainability and durability solutions. Typical work tasks of employees are embedded in supply chain optimization, sales, logistics and operations in a business-to-business context. The global nature of their work highlights the connectivity demands inherent in their work; however, working after hours is not something that is formally rewarded or expected in the organization. Supported by the HR department, we obtained an email list of all office employees at the time (N = 3070), which was used for all three surveys. Employees were informed by the organization about the upcoming study, but the organization was not involved in the data collection nor had access to the raw data (this data protection was clearly communicated to employees). The lead researcher sent out an email with a link to the online survey. Each data collection period lasted for 2 weeks during which employees received two reminders (one after a week and finally one 48 hr before closing the data collection period). The three surveys were administered at 3-month time intervals between measurement occasions. Although there are no specified optimal time lags for studying the relationships between connectivity, autonomy and well-being, research on the antecedents and consequences of psychological well-being have demonstrated meaningful effects on time horizons as short as one (Daniels & Guppy, 1997) or 2 months (Halbesleben & Bowler, 2007). Alternatively, too long time intervals may increase attrition across waves and introduce confounds due to changes in the work environment. Hence, the 3-month time lag was deemed sufficient to detect relationships between the study variables.

Sample

In total, 192 employees completed all three surveys. The first survey had a response rate of 17.8% (n = 545; N = 3070; where N indicates population size). The second and third survey yielded a response of 24.5% (n = 753; N = 3070) and 20.2% (n = 619; N = 3070), respectively. Only those participants who responded to all waves have been included in the analysis. Across waves, the average dropout percentage was 40.6% (T1–T2: 41.5%; T2–T3 39.6%); survey two was completed by 318 respondents (of the 545 respondents

from the first survey), and finally, 192 employees of these respondents also completed the third survey. Hence, the response rate based on all three waves was 6.3%. Following recommendations by Goodman and Blum (1996), we assessed subject attrition by (I) examining the presence of nonrandom sampling, (II) examining mean differences across dropouts and survivors, and (III) examining cross-sectional multigroup SEM to compare regression weights between dropouts and survivors. We found that disappearance from the sample between waves was not likely to be the result of different causal dynamics and nonrandom sampling does not seem problematic in our data.[1] Most respondents (57.7%) were male, and 42.3% were female. The typical workweek of employees lasted 42.03 hr (SD = 6.40), and the average organizational tenure was 9.16 years (SD = 10.43). Most respondents held a university degree (59.3%), and 26.6% held an applied science degree.

Measures

Each of the measures described below was measured on all three measurement occasions. Please see the Appendix A for all measurement items.

Connectivity

After-hour connectivity measures the extent to which employees feel connected to work through communication technologies after regular business hours. We used the four items from Büchler et al. (2020) to measure after-hour connectivity by asking employees to indicate their (dis)agreement with items such as 'Through the use of my mobile work devices, I stay connected to work during non-work hours'. This measure is appropriate for after-hour connectivity because it captures various core attributes of connectivity identified in previous research—that is perpetual availability (Wajcman & Rose, 2011), control over work outside work hours (Perlow, 2012) and blurring boundaries (Boswell & Olson-Buchanan, 2007). Responses were anchored 1 = strongly disagree and 7 = strongly agree.

Autonomy

Three dimensions of autonomy were measured: work method autonomy, work scheduling autonomy and work criteria autonomy. All dimensions were measured using three items each, from Breaugh (1985); respondents were asked to indicate their (1) disagreement or 7 (agreement) with the statements. *Work method autonomy* measures the degree of discretion employees have regarding the procedures, or more accurately, methods they use to fulfil job tasks and obtain work goals. Sample items include 'I am able to choose the way I go about my job'. *Work scheduling autonomy* refers to the extent to which employees feel in control over the timing of their work activities. Sample items include 'I have control over the scheduling of my work'. *Work criteria autonomy* refers to the degree to which employees have the ability to choose or modify the criteria used to evaluate job performance. Sample items include 'I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives)'.

Exhaustion

Exhaustion represents an individual stress dimension of burnout and refers to a feeling of being depleted of emotional and physical resources. Higher scores indicate a stronger feeling of being overextended by

[1]The analysis is available as an Online Supplemental File to this article.

TABLE 1 Correlations and descriptive statistics

Constructs	Mean (SD)	Ω	AVE	Max (H)	1	2	3	4	5	6	7	8	9	10	11	12
Time 1																
1. Connectivity	4.04 (1.92)	.95	.82	.95	**.91**											
2. Autonomy	4.93 (1.00)	.78	.54	.79	.11	**.73**										
3. Exhaustion	3.22 (1.32)	.84	.65	.91	.03	−.27*	**.81**									
Time 2																
4. Connectivity	4.14 (1.89)	.94	.81	.96	*.85**	.07	.07	**.90**								
5. Autonomy	4.86 (.95)	.74	.49	.75	.27*	*.68**	−.29*	.22*	**.70**							
6. Exhaustion	3.65 (1.48)	.85	.70	.94	.01	−.29*	*.75**	.03	−.38*	**.86**						
Time 3																
7. Connectivity	4.17 (1.89)	.95	.81	.96	*.84**	.21*	.00	*.89**	.23*	−.04	**.90**					
8. Autonomy	4.73 (1.11)	.82	.51	.84	.20*	*.72**	−.18*	.19*	*.67**	−.26*	.24*	**.71**				
9. Exhaustion	3.60 (1.46)	.85	.70	.93	.02	−.28*	*.74**	−.01	−.38*	*.84**	−.05	−.32*	**.86**			
Demographics at Time 1																
10. Gender	58% / 42%	–	–	–	.03	.18*	.04	.03	.10	.02	.02	.15	.07	–		
11. Age	43.13 (10.68)	–	–	–	.11	−.12	−.11*	.17*	−.06	−.20*	.08	−.10	−.25*	−.21*	–	
12. Work hours	41.84 (5.76)	–	–	–	.44*	−.10	.23*	.43*	.05	.05	.43*	.04	.06	−.16*	.07	–
13. Tenure	9.76 (10.98)	–	–	–	−.02	−.11*	−.03	−.00	−.09	.07	−.06	−.07	−.15*	−.13	.66*	−.04

Note: Values on the diagonal represent the square root of the AVE. Values in italics represent stability coefficients of the same constructs across waves. Significant correlations are flagged *. Reported percentages indicate male/female. Bold values indicate the square root of the average variance extracted.

work. We used the exhaustion dimension of the Maslach Burnout Inventory (Maslach & Jackson, 1981). Five items, including 'I feel mentally exhausted by work', were utilized. Respondents were asked how frequently they felt a certain way at work, responses ranged from 0 (never) to 6 (always, every day). Table 1 depicts validity [i.e., average variance extracted (AVE) and square root of AVE] and reliability statistics [omega reliability and maximum reliability (H)] as well as scale means and standard deviations.

Analyses

Before testing our hypotheses confirmatory factor analysis (CFA) was conducted to assess the validity and reliability of the measurement instruments. Subsequently, the three-wave data were analysed using covariance structural equation modelling using AMOS. Estimating latent cross-lagged structural equation modelling involved fitting a number of competing models to the data. First, a baseline model ($M_{(baseline)}$) without cross-lagged structural paths, but with autoregressive paths, was examined—that is the regression weights between the same variables across waves (e.g., after-hour connectivity at T1 and after-hour connectivity at T2). This model demonstrated the temporal stability of the constructs at each measurement occasion. Subsequently, this model was compared with three more complex models nearest to the hypothesized structural model. These models include the causal model $M_{(causal)}$, the reversed causal model $M_{(reversed)}$ and the reciprocal model $M_{(reciprocal)}$. These models are compared with provide tentative support for the proposed directionality of the relationship. Hence, some models include alternative directionalities.

The causal model is identical to the baseline model but includes cross-lagged structural paths from connectivity to autonomy and from autonomy to exhaustion between time points. Thus, the causal model ($M_{(causal)}$) reflects the assumption that connectivity shapes autonomy (H3a) and autonomy in turn affects exhaustion (H2 and H4). By contrast, the reversed causal model ($M_{(reversed)}$) estimates the cross-lagged structural paths from autonomy to connectivity (H3b), which in turn affects exhaustion (H5a and H5b). Finally, the reciprocal model $M_{(reciprocal)}$ includes the structural paths between the model constructs in both directions, thus including all structural paths of both $M_{(causal)}$ and $M_{(reversed)}$.

Note that for all latent models, the measurement errors of the same indicators were allowed to covary across measurement occasions (e.g., Anderson & Williams, 1992). While one typically does not specify covariances between measurement errors in cross-sectional models, for longitudinal models, the errors of measurement of the same indicator across time should covary. Failing to specify such covariances may lead to high stability coefficients and poor model fit. In addition, autonomy is measured using a 9-item scale comprising of three facets—that is work method autonomy, work scheduling autonomy and work criteria autonomy—however, adding nine indicators (three times, for each measurement occasion) would have resulted in an unacceptably high ratio of estimated parameters. Therefore, a parcelling procedure for the latent factor indicators of autonomy was chosen, keeping the multidimensional nature of the construct, and allowing the unique component of a facet to other constructs in the model (Little et al., 2002).[2] As a result, we reduced the number of path coefficients by collapsing the nine original items into three multi-item composites, maintaining the dimensionality of the autonomy construct. Bias-corrected confidence intervals for indirect effects were obtained through bootstrapping (5000 resamples) using maximum likelihood estimation.

Finally, the latent models were compared based on a chi-squared difference test ($\Delta\chi^2$). Further two incremental fit indices—that is the Tucker–Lewis Index (TLI) and the Comparative Fit Index (CFI)—and two absolute fit indices—that is standardized version of the root mean squared residual (SRMR) and the root mean square of approximation (RMSEA)—were used to gauge model fit. Notably, values for incremental fit indices >.95 and absolute indices below ≤.05 and ≤.08 for the RMSEA and SRMR, respectively, indicate excellent model fit (Hu & Bentler, 2009). Moreover, a chi-square to degrees of freedom ratio below 3 is desirable.

[2]A similar approach was used by Rantanen et al. (2008). In addition, we also estimated the final model using all indicators. This analysis yielded similar results.

RESULTS

Confirmatory factor analysis

Means, standard deviations, reliability statistics and correlations among the study variables are reported in Table 1. A CFA was used to estimate the measurement model including the study variables at all three measurement occasions. The model demonstrated excellent fit to the data: χ^2 (522) = 682.83; TLI = .97; CFI = .98; RMSEA = .040 (CI: .031, .048) and SRMR = .06. All factor loadings were significant and sizeable on their intended latent factor (ranging between .62 and .95). The AVE ranged between .49 for autonomy at T2 and .82 for connectivity at T1 and T3. Reliability statistics indicate good reliability as per the omega reliabilities (Ω), ranging from .74 to .95 and the maximum reliability (H) ranges between .75 and .95. Notably, we included the demographics, age, gender, tenure and work hours in the correlational analysis.

It is important to establish factorial invariance across measurement occasions to assess whether respective indicators represent the same underlying construct over time. Factorial invariance was examined by fitting a series of increasing constraint models. Weak factorial invariance indicates that the loadings of corresponding indicators are equated across measurement occasions. Strong factorial invariance is established when in addition to factor loadings, the intercepts of corresponding indicators are also equated across measurement occasions. Finally, strict invariance indicates that the residual variances of corresponding indicators are equal across measurement occasions (see for a discussion on factorial invariance; Little et al., 2007). The results indicate that weak measurement invariance ($\Delta\chi^2_{(24)} = 30.78$, $p = .160$) and strong measurement invariance ($\Delta\chi^2_{(6)} = 5.25$, $p = .513$) can be assumed. Strict measurement invariance is not established ($\Delta\chi^2_{(30)} = 49.62$, $p = .014$). However, this assumption rarely holds and does not obstruct the comparison of regression coefficients across waves (Van de Schoot et al., 2015).

Structural models

To provide tentative evidence for the directionality between after-hour connectivity and autonomy, a series of competing models were estimated. In addition, this procedure helps to identify the best-fitting and most parsimonious model. Table 2 displays the model fit indices of these concurrent models. The model comparison shows that the reciprocal model ($M_{(reciprocal)}$) demonstrates superior model fit compared with the baseline model ($M_{(baseline)}$): $\Delta\chi^2_{(8)} = 29.06$, $p < .001$. Notably, the reversed causal model ($M_{(reversed)}$) did not show significant model fit improved compared with the baseline model ($M_{(baseline)}$): $\Delta\chi^2_{(4)} = 3.43$, $p = .489$. In addition, the reciprocal model ($M_{(reciprocal)}$) demonstrated significantly better model fit than the reversed model ($M_{(reversed)}$): $\Delta\chi^2_{(8)} = 24.63$, $p < .001$. Finally, the causal model ($M_{(causal)}$) also demonstrated significant model improvement compared with the baseline model ($M_{(baseline)}$): $\Delta\chi^2_{(4)} = 22.50$, $p < .001$. The causal model ($M_{(causal)}$) does not demonstrate a significantly better model fit than the reciprocal model ($M_{(reciprocal)}$): $\Delta\chi^2_{(4)} = 6.56$, $p = .161$. These results provide initial evidence for the hypothesized directionality with effects from connectivity to autonomy, and autonomy to exhaustion, rather than the reversed direction from autonomy to connectivity and connectivity to autonomy. Since the reciprocal model does not improve model fit compared with the causal model, the more parsimonious causal model is preferred.

Results for hypotheses testing

We now move to examine the specific structural relationships between connectivity, autonomy and exhaustion. The causal model indicates excellent model fit: χ^2 (545) = 762.01; CFI = .97; TLI = .96; SRMR = .060 and RMSEA = .046 (CI: .038, .053). Figure 2 depicts the causal model ($M_{(causal)}$) and reports on the standardized coefficients and significance levels. Note that we controlled for age, gender, tenure and work hours, by adding these variables to the initial model as independent variables. However,

TABLE 2 Goodness-of-fit indices competing models

Name	Model	χ^2	*df*	TLI	CFI	RSMEA (95% CI)	SRMR	$\Delta\chi^2$ (Δdf)	Model comparison
M_m	Measurement model	682.83	522	.97	.98	.040 (.031; .048)	.06		
$M_{baseline}$	Only autoregressive structural paths	784.51	549	.96	.97	.047 (.040; .055)	.08		
M_{causal}	$M_{baseline}$ + Connectivity → Autonomy → Exhaustion	762.01	545	.96	.97	.046 (.038; .053)	.06	22.50** (4)	$M_{baseline}$ versus M_{causal}
$M_{reversed}$	$M_{baseline}$ + Exhaustion → Autonomy → Connectivity	780.08	545	.96	.97	.048 (.040; .055)	.07	3.43 *n.s.* (4)	$M1_{baseline}$ versus $M1_{reversed}$
$M_{reciprocal}$	$M1_{reversed}$ + $M2_{causal}$	755.45	541	.96	.97	.046 (.038; .053)	.06	29.06** (8) 6.56 *n.s.* (4) 24.63** (4)	$M1_{baseline}$ versus $M1_{recirpocal}$ $M1_{causal}$ versus $M1_{reciprocal}$ $M1_{reversed}$ versus $M1_{reciprocal}$

**$p < .05$.

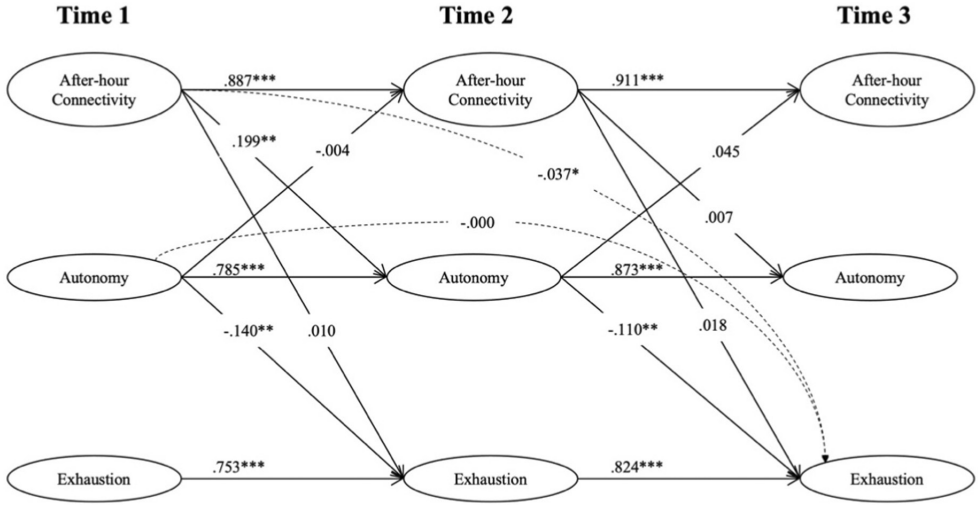

FIGURE 2 Results for the causal model. Results of three-wave longitudinal autoregressive mediation model. Standardized structural regression weights are reported. Dashed lines indicate hypothesized indirect effects (H4, H5a and H5b). Significance is flagged; ***$p < .001$, **$p < .01$, *$p < .05$

since none of these variables affected the hypothesized relationships and there was no strong theoretical reason to retain them in the model, the control variables were dropped to create a more parsimonious model (Spector & Brannick, 2011). Below, we report the unstandardized coefficients. Please note, that the parameter estimates related to H3b, H5a and H5b are inferred from the reciprocal model ($M_{(reciprocal)}$), and the results for all other hypotheses (H1, H2, H3a and H4) are derived from the causal model ($M_{(causal)}$: See Table 2). Following the parsimony principle—'given two models with similar fit to the data, the simpler model is preferred' (Kline, 2015, p. 128)—the data suggest that the causal model should be preferred over the reciprocal model. However, hypotheses H3b, H5a and H5b require an interpretation of the reciprocal model that demonstrates a similar model fit but is less parsimonious.

Hypothesis 1 reflects the assumption that after-hour connectivity is positively (H1a) or negatively (H1b) related to exhaustion. The results indicate connectivity is not significantly related to exhaustion ($B = .009$ [−.085; .099], $p = .914$ from T1 to T2; $B = .016$ [−.062; .104], $p = .688$ from T2 to T3). Hence, hypotheses 1a and 1b are not supported. Hypothesis 2 suggests autonomy is negatively related to exhaustion. The results indeed indicated that autonomy reduced exhaustion ($B = -.208$ [−.400; −.090], $p = .016$ from T1 to T2; $B = -.186$ [−.434; −.014], $p = .036$ from T2 to T3). These results provide support for hypothesis 2.

Hypothesis 3a and 3b reflect the assumption that autonomy and after-hour connectivity are reciprocally related. Hypothesis 3a suggests that after-hour connectivity increases autonomy. The results indicate that after-hour connectivity is positively related to autonomy between T1 and T2 ($B = .099$ [.030; .180], $p = .004$, from T1 to T2) but not between T2 and T3 ($B = .005$ [−.102; .113], $p = .957$). These results provide partial support for H3a. Hypothesis 3b suggests autonomy is positively related to after-hour connectivity. The results do not demonstrate a significant relationship from autonomy to after-hour connectivity ($B = -.006$ [−.172; .153], $p = .967$ from T1 to T2 $B = .087$ [−.054; .244], $p = .215$ from T2 to T3). Hence, hypothesis 3b was not supported.[3]

Hypothesis 4 reflects the notion that after-hour connectivity can decrease exhaustion through increased autonomy. The indirect effect of after-hour connectivity on exhaustion through autonomy is negative and significant ($B = -.018$ [−.051; −.003], $p = .018$). Hence, hypothesis 4 is supported. Finally,

[3]As respondents may feel that scheduling autonomy and connectivity may conceptually overlap, we examined the robustness of the findings by removing scheduling autonomy. The model without scheduling autonomy demonstrates the same pattern of results.

hypothesis 5 suggests that autonomy increases (H5a) or decreases (H5b) exhaustion through after-hour connectivity. The results do not provide support for these assumptions as autonomy at T1 did not significantly impact after-hour connectivity at T2 ($B = -.006$ [−.172; .153], $p = .967$), while after-hour connectivity was also not significantly related to exhaustion ($B = .009$ [−.085; .099], $p = .914$ from T1 to T2 $B = .016$ [−.062; .104], $p = .688$ from T2 to T3). As such, no significant indirect relationship from autonomy to exhaustion through after-hour connectivity was found ($B = -.000$ [−.008; .007], $p = .830$). These results do not support hypotheses 5a and 5b.

DISCUSSION

A comparison of the baseline, reversed, causal and reciprocal model indicated that the causal model is the best-fitting and most parsimonious model. This suggests that a model predicting that connectivity increases autonomy, which in turn reduces exhaustion, fits better to the data than a model suggesting that autonomy increases connectivity which in turn increases exhaustion. Specifically, the results demonstrate that after-hour connectivity was found to reduce exhaustion through increased autonomy. The findings support the idea that after-hour connectivity may operate as an important resource that may help employees obtain additional resources including more leeway over when, where and how they work. However, it should be noted that the effect of after-hour connectivity on autonomy was only found between T1 and T2 and was not replicated between T2 and T3. The results of this study, in combination with other recent findings examining the relationship between ICT use and workers' connectivity (Heissler et al., 2022; Hu et al., 2021), demonstrate that the narrative of after-hour work as uniformly problematic for workers is largely a straw-man. In line with COR theory, after-hour connectivity can also operate as a resource investment and trigger an increase in perceptions of other important resources such as autonomy.

Theoretical implications

This study makes several theoretical contributions to our understanding of the relationship between workers' connectivity, autonomy and exhaustion. First, in recognizing how connectivity can empower workers through increased autonomy, the findings align with the idea behind proactive perspectives on work design (Nurmi & Hinds, 2020; Rofcanin et al., 2019; Wrzesniewski & Dutton, 2001), suggesting that employees are agents adapting to, and transforming, job demands rather than passive recipients of work characteristics. After-hour connectivity can be viewed as a recovery-promotive workplace feature to the extent that it reflects an agentic process giving employees more autonomy over their work processes. In terms of the conservation of resources, the findings imply that investing some resources—for example time and energy—to connect after hours, may generate greater resource benefits in terms of increased autonomy. This aligns with findings about the positive implications of availability on work performance (Ten Brummelhuis et al., 2021) and smartphone use after hours benefiting well-being (Ohly & Latour, 2014). Our findings indicate that decisions, whether autonomous or controlled, to connect after hours may enhance autonomy and as such lead to a positive impact on employee well-being. Hence, after-hour connectivity is not a simple bug to be fixed, but rather a feature to be better understood and managed.

Notably, the findings also demonstrate that the positive relationship between connectivity and autonomy could not be replicated between wave 2 and wave 3. This suggests that the longitudinal evidence for the benefits of connectivity for worker autonomy is still inconclusive. Ten Brummelhuis et al. (2021) recently suggested that different aspects of constant connectivity could impact workers' need fulfilment in different ways. For instance, positive aspects of constant connectivity such as availability increased perceptions of communication control, while negative aspects of constant connectivity such as interruptions reduce communication control. One reason for the absence of a significant relationship between connectivity and autonomy between T2 and T3 could be that the balance between availability and

interruptions resulting from constant connectivity had shifted. Future research is needed to generate deeper insights into the longitudinal relationships between connectivity and autonomy.

Second, our findings do not support the notion that the freedom to choose work schedules, methods and work criteria leads employees to extend their connectivity after hours. Interestingly, while research suggests social norms and expectations (Gadeyne et al., 2018) and job designs (Nurmi & Hinds, 2020) may increase connectivity after hours, our results show that, independent of such demands, after-hour connectivity is facilitating individual's agentic work processes. The findings inform the discussion on the relationships between connectivity behaviours (e.g., after-hour connectivity, frequency of communication and site visits) and autonomy (Mazmanian et al., 2013; Nurmi & Hinds, 2020), indicating that not all types of connectivity limit workers' autonomy. Research on connectivity in global work highlights demands for connection and pressures to stay connected 24/7, but often fails to link varying connectivity demands to work outcomes (Nurmi & Hinds, 2020). While after-hour connectivity might still be experienced as an intrusion of work into personal lives because of an inability to detach from work, it also seems plausible that workers enact after-hour connectivity to facilitate flexibility (Heissler et al., 2022). Hence, although choosing to stay connected may very well blur boundaries and cause conflict (Boswell & Olson-Buchanan, 2007; Derks et al., 2016), it can also provide workers with the autonomy to manage boundaries and avoid conflict more effectively (De Alwis et al., 2022). Given the increasingly remote and fluid nature of work and the ubiquity of ICTs, it is important to recognize that after-hour connectivity may be desired by workers and not merely experienced as an obligation or pressure from organizations. The findings regarding the role of autonomy in understanding the consequences of after-hour connectivity are consistent with research indicating that feelings of independence are associated with satisfaction with remote work conditions and the ability to balance work and nonwork demands (Raghuram et al., 2019).

Third, the notion that employees experience more autonomy also relates to recent findings by Russo et al. (2019), who argue that humans have agency in the face of material agency and utilize this to regulate their connectivity. The authors conclude 'that individuals are agentic in the management of their smartphones as they are likely to engage in a series of discretionary behaviors aimed at promoting gains associated with breaks in the smartphone use and/or preventing negative outcomes due to constant connectivity' (Russo et al., 2019, p. 17). Our findings suggest that employees may utilize the material features of smartphones and laptops to connect after hours. However, it is very well possible that workers also decide to disconnect, or take breaks from connectivity throughout the day, to enable focused work, have meetings, take lunch breaks or run personal errands. In turn, employees may catch up on emails, or other communication after hours allowing them to enjoy more flexibility to organize their work throughout the day. It should also be noted that after-hour connectivity does not necessarily imply an extension of work as these behaviours may just compensate for time spent on nonwork activities throughout the day. Moreover, connectivity through smartphones and monitoring emails on mobile devices are often short usage sessions that require less attention and focus than more substantial work practices such as supplemental work (Gadeyne et al., 2018).

Finally, although several studies argue that connectivity presents almost impossible conditions for employees to disconnect from work (Mazmanian et al., 2013; Perlow, 2012), research on contemporary work design indicates that employees exercise discretion vis-à-vis their social environment, determining the extent of their interactions with co-workers (Bruning & Campion, 2018). The findings of this study highlight the value of seeing connectivity as a potential resource for workers and directing more attention to ways that employees can manage optimal states of connectivity according to their work demands (Kolb et al., 2012; MacCormick et al., 2012). Scholars examining organizational change—such as the presence of technology that increases potential connectivity—have advocated a *resourcing* perspective (Howard-Grenville, 2007; Sonenshein, 2014) that argues that potential organizational assets do not have meaning until they are appropriated in situated use. Within this framework, the same level of connectivity can be enacted by some workers as a resource for autonomy, and by other workers operate as a constraint that limits workers' options. A benefit of this perspective is that it recognizes how the same material forms of connectivity in an organizational context may produce different perceptions of autonomy

(Treem et al., 2020). In the context of this study, employees were able to utilize connectivity as a valuable resource to facilitate autonomy.

Practical implications

Ultimately, whether after-hour connectivity as a job characteristic can be utilized as a resource, merely presents demands, or arguably both is of particular importance to organizations with a remote or distributed workforce. To date, many of the policies and regulations proposed to deal with connectivity, especially after-hour connectivity, have focused on preventing the possibility to connect. We have seen prominent examples of Volkswagen and Daimler deciding to take their email servers offline during nonwork time (Haridy, 2018). At a legislative level, laws are proposed to anchor employees' right to disconnect after hours—for example the French El Khomri law (Von Bergen et al., 2019). While these initiatives may indeed protect employees from the adverse effects of after-hour connectivity, these measures are also somewhat blunt as they seem to throw the baby out with the bathwater. Implementing strict rules about connectivity or preventing employees to connect at times may limit their ability to enhance their autonomy and craft their jobs. Given our findings that after-hour connectivity can be an important resource employees utilize to increase their autonomy, it is worthwhile for organizations to consider approaches that also safeguard these beneficial implications of after-hour connectivity. However, promoting after-hour connectivity may yield adverse effects as it is shown to raise expectations regarding availability and may create pressures to connect undermining potential autonomy benefits. Additionally, after-hour connectivity may have a negative impact on work–life balance and detachment needed for employees to recover from work demands. Hence, it behoves organizations and management to establish clear criteria regarding after-hour connectivity and emphasize that individual preferences to connect *and* disconnect are respected and firmly grounded in organizational policies. In addition, especially family-friendly work cultures and open communication about work–life demands with supervisors may help to hamper some of the negative impacts associated with after-hour connectivity while fostering the positive ones (French et al., 2018; van Zoonen et al., 2020).

Hence, a focus on facilitating a work environment that allows workers to be proactive and exercise control regarding their connectivity behaviours and motivations seems particularly fruitful when contextual cues about appropriate levels of connectivity are clear. Organizations may facilitate such conditions by training their leaders and employees. For leaders, these programmes may focus on ways to promote responsible technology use at home and create an environment absent of excessive response norms or pressures. In addition, leaders may think of ways to afford employees the flexibility to disconnect throughout to ensure sufficient downtime during the whole day. For employees, training may include education on the implications of after-hour connectivity or technology use and screen time in the evening. These programmes can be focused on providing employees with knowledge to reflect on their connectivity behaviours and set boundaries that fit their needs and available resources. In addition, Althammer et al. (2021) noted the benefits of mindfulness training in increasing detachment, work–life balance and satisfaction.

Limitations and future research

Several limitations need to be acknowledged. For instance, we measured employees' perception of after-hour connectivity assessing their tendency to stay connected after work. However, the data do not facilitate any interpretation related to the extent to which this connectivity is enough or too much, and neither did we examine possible antipodes of autonomy such as obligation, control, enslavement or pressures to be responsive. To develop a deeper understanding of the implications of after-hour connectivity, future research could examine whether and how employees may disconnect from work during 'regular' work hours. Studies have demonstrated that employees manage their connectivity by increasing and

decreasing their availability throughout the day (e.g., Kolb et al., 2012). Daily diary methods allow for a closer inspection of the impact of after-hour connectivity by considering connectedness during the workday. In addition, such diary studies have the advantage of being able to interrogate within-person changes over time. Similarly, as technologies may be used in autonomy-enhancing and autonomy-diminishing ways (Mazmanian et al., 2013), future research could integrate factors such as obligation and control as mechanisms that may explain detrimental effects.

In addition, the overall response rate reported in this study is relatively low for employee surveys in organizational research (Baruch & Holtom, 2008). It is possible that this introduces nonresponse error as individuals who responded to our study are systematically different from those who did not participate. While the dropout analyses provided little reason to assume dropouts differed systematically from panel survivors, it is possible that respondents are different from employees who never responded to any of our surveys. For instance, employees who exert greater connectivity to work might have had more opportunities to be included in the study, while healthier workers may have felt more inclined to participate. Future studies may reduce nonresponse by utilizing different distribution methods and investigate the impact of nonresponse by conducting and reporting nonresponse bias tests (Baruch & Holtom, 2008).

Furthermore, although the study was conducted in an organization operating on a global scale with most workers having to coordinate tasks between different geographical locations and time zones, we do not have insights into global team dynamics or group norms that may influence the proposed relationships. The findings are based on one organization which may limit the generalizability of the findings. Future research needs to replicate these findings in a variety of organizations and contexts to improve the validity of the findings presented here. In addition, the findings are based on 3-month time intervals. Although applied psychology literature demonstrates that 1-year time intervals are still very common, it also acknowledges the need for shorter time lags and 'shortitudinal' designs (Dormann & Griffin, 2015). The effects of work experiences and attitudes may not take long to be expressed, while the impact may last long. Hence, future research is needed to explore the short and longer-term implications of after-hour connectivity.

Finally, we demonstrate that after-hour connectivity can be viewed as a resource employees use to increase their autonomy. The longitudinal relationship remains inconclusive. Additional research is needed to provide insights into the conditions in which connectivity is likely to be enacted as a resource empowering workers, when it is likely to constrain actions, and what communication practices might facilitate particular outcomes. Furthermore, connectivity is associated with various proximal implications such as availability and interruptions which may have distinct implications in relation to more distal outcomes such as employee performance and well-being. Hence, future research may not only explore conditions that may determine the implications of after-hour connectivity but also explore closely tied benefits and drawbacks of connectivity in relation to autonomy and exhaustion.

CONCLUSION

This study examined the relationships between after-hour connectivity, autonomy and exhaustion. The findings demonstrate that after-hour connectivity increases autonomy and reduces employee exhaustion by enhancing autonomy. These findings suggest that after-hour connectivity can be utilized as an important resource that allows employees to obtain additional resources (i.e., autonomy) that ultimately improve well-being (i.e., reduce exhaustion). The findings provide evidence that employees may benefit from after-hour connectivity when they can engage in these connectivity practices to provide themselves with more control and leeway over when, where, and how they work.

AUTHOR CONTRIBUTION

Ward van Zoonen involved in conceptualization, formal analysis, methodology, writing the original draft, review and editing. Jeffrey W. Treem involved in writing the original draft, review and editing. Anu E. Sivunen involved in writing the original draft, review and editing and project administration.

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CONFLICT OF INTEREST
We have no known conflict of interest to disclose.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ORCID
Ward van Zoonen https://orcid.org/0000-0002-8531-8784
Jeffrey W. Treem https://orcid.org/0000-0003-3269-5559
Anu E. Sivunen https://orcid.org/0000-0001-7068-2260

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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APPENDIX A

A.1 Measurement Items

Connectivity (Büchler et al., 2020).

- Through my (mobile) work devices, I am always available for my colleagues and/or clients, also during nonwork hours
- During nonwork hours, I monitor my work through my (mobile) work devices (e.g., checking emails or similar work-related messages and enterprise social media).
- For me, it is common to check and answer emails or other work-related messages during nonwork hours
- Through the use of my (mobile) work devices, I stay connected during nonwork hours

Autonomy (Breaugh, 1985).

Work method autonomy

- I am allowed to decide how I get my job done (the methods to use)
- I am able to choose the way to go about my job (the procedures to utilize)
- I am free to choose the method(s) to use in carrying out my work

Work scheduling autonomy

- I have control over the scheduling of my work
- I have some control over the sequencing of my work activities (when I do what)
- My job is such that I can decide when to do particular work activities

Work criteria autonomy

- My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others
- I am able to modify what my job objectives are (what I am supposed to accomplish)
- I have some control over what I am supposed to accomplish (what my supervisor sees as my job objectives)

Exhaustion (Maslach & Jackson, 1981).

- I feel emotionally drained from my work
- I feel used up at the end of the workday
- I feel tired when I get up in the morning and have to face another day on the job
- Working all day is really a strain for me
- I feel burned out from my work