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► **To cite this version:**

Ludivine Martin, Chantal Fuhrer, Nicolas Poussing. E-mail overload: Exploring employees' experiences using e-mail during worktime and leisure time and consequences for their subjective well-being. *Information and Management*, 2025, 62 (2), pp.104089. <10.1016/j.im.2024.104089>. <hal-04882827>

HAL Id: hal-04882827

<https://hal.science/hal-04882827v1>

Submitted on 16 Jan 2025

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E-mail overload: Exploring employees' experiences using e-mail during worktime and leisure time and consequences for their subjective well-being

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Pre-copyedit version of the paper published in *Information & Management* (2025), vol. 62, 104089, <https://doi.org/10.1016/j.im.2024.104089>

Abstract:

Increased connectivity between employees and their organizations complicates managing information flows and constant availability via e-mail. We classify employees' e-mail experiences using e-mail into groups of e-mail overload based on a boundary perspective and assess its impact and coping mechanisms, from a coping perspective, on subjective well-being. Survey results ($N = 1,372$) show that (1) e-mail overload during worktime increases job stress and reduces job and life satisfaction; (2) e-mail overload during work and leisure increases job stress and reduces life satisfaction; and (3) having no e-mail overload decreases job stress and improves job and life satisfaction. We formulate implications for research and practice.

Keywords: e-mail overload, coping mechanisms, well-being, survey data

1 Introduction

The multiplicity of information and communication devices (computers, smartphones, tablets, etc.) and digital tools (e-mails, social media, document sharing, instant messaging, video conferencing, etc.), combined with high-speed network performance and the widespread use of wireless networks, allow increasingly nomadic connection from anywhere and at any time (Eurofound & ILO, 2017). Even though instant messaging applications such as WhatsApp, Messenger, Telegram, and Microsoft Teams are popular (Bahri et al., 2020; Yang et al., 2022), professional e-mail remains the most prominent and popular way to communicate while working (Russell et al., 2024; Letmathe & Noll, 2024). Checking their e-mails is the first thing done by individuals in the morning before they look at social media or anything else online (The Radicati Group, 2023). In addition, the number of e-mails received is still growing, as shown by The Radicati Group (2023), which estimates that the number of business-related e-mails sent and received per user per day worldwide is nowadays growing at a rate of more than 4% per year. At the same time, at the EU level, it has been estimated that the cost (overall cost, direct health cost, and loss of productivity) due to low employee well-being is above 450 billion EUR per annum (International Labour Organization, 2016).

Professional e-mail use has been shown to have mixed effects. On one hand, positive impacts such as increasing work efficiency, reducing repetitive tasks, and enhancing information and knowledge sharing create a motivational work environment beneficial for both employees and their organizations (Castellacci & Tveito, 2018; Martin, 2017). Additionally, the stakes related to e-mail use are not only at the personal level; guaranteeing the motivation, health, and cohesion of the staff to ensure continuity of production is also a major issue for organizations (Barley et al., 2011; Martin, 2017; Wang et al., 2020).

On the other hand, negative impacts appear, such as e-mail creating a culture of urgency and immediacy (Jerejian et al., 2013; Lanctot & Duxbury, 2021) or disrupting managerial relations (Mazmanian et al., 2013). E-mail is has a number of negative aspects, most prominently “e-mail overload” (Gupta et al., 2011; Tarafdar et al., 2023). E-mail overload is defined as an individual’s perception of being overwhelmed by e-mail that they consider too much to handle (Misra et al., 2020; Tarafdar et al., 2023). It covers information overload (volume of e-mails), communication overload (frequency of e-mail use), and cognitive overload (inability to process the flow of information). Despite authors studying ICT-mediated overload (e.g., Yu et al., 2023), little is known about how employees’ experience of using e-mails leads to e-mail overload during worktime and/or leisure time. However, boundary issues are increasingly becoming critical in the post-COVID-19 digital transformation of the work environment.

Therefore, our first objective is to understand which forms of e-mail overload emerge from employees’ experience of using professional e-mail during worktime and leisure time. We draw on a boundary perspective to have a comprehensive classification of employees’ practices when they deal with professional e-mail during their worktime and when they decide to (or have to) deal with professional e-mail during their leisure time. We draw on a coping perspective to assess the consequences of e-mail overload, which are rarely beneficial for employees. The risks relating to e-mail overload are psychological and emotional (Barley et al., 2011). According to the transactional theory of stress, in technostress research, overload, as a dimension of environmental demands or techno-stressors, is mainly appraised as stressful (Ragu-Nathan et al., 2008; Stich et al., 2019; Tarafdar et al., 2007, 2019, 2023). Authors highlight work-related outcomes including lower productivity, increased work and longer working hours, and poor decision-making (Tarafdar et al., 2023). Scholars have pointed out other negative effects on work outcomes such as productivity, innovation, and performance

(Yu et al., 2023). E-mail interruptions not only drain cognitive energy, but also can affect well-being negatively (Wijngaards et al., 2022). Furthermore, e-mail interruptions are likely perceived as incompatible with goal progress and goal attainment and, for this reason, thwart employees' well-being (Wijngaards et al., 2022). In this context, a body of research has tried to identify coping mechanisms to overcome these negative consequences of e-mail overload, such as the to-do list (Letmathe & Noll, 2024) or the definition of a speed of response expectation (Giurge & Bohns, 2021). Nevertheless, in existing evidence, how e-mail overload may be beneficial or detrimental to employees' subjective well-being is only indirectly measured via specific e-mail use or misuse (regarding, e.g., volume, time dedicated to e-mail) and one or two dimensions of subjective well-being.

The increasing prevalence of remote work and flexible work arrangements, which generate a digital and hybrid work environment, especially after the COVID-19 pandemic (Barrero et al., 2021, DeFilippis et al., 2020, Kudyba, 2020), necessitate research on achieving healthy e-mail consideration at work and outside in the context of a blurred boundary between work and non-work spheres (including the location and the time or moment, which separate the two). Our second objective is thus to examine a number of aspects of global work and life subjective well-being, rather than focusing solely on a few work-related outcomes (such as productivity, decision-making, or job stress). Subjective well-being is defined as an individual's overall evaluation of their satisfaction with their work and personal life. Subjective well-being is defined by three key characteristics: It is subjective, it encompasses positive and negative measures, and it involves a comprehensive evaluation all aspects of an individual's life circumstances (Diener, 1984). To gain insight into the impact of e-mail overload on employees' subjective well-being, we thus examine three key dimensions of subjective well-being: job stress, job satisfaction, and life satisfaction.

In sum, the present empirical assessment aims to address the aforementioned gaps by proposing a novel classification of e-mail overload and providing new empirical evidence on its impact on employees' subjective well-being, along with coping mechanisms to overcome its detrimental effects. An online survey of 1,372 employees was conducted. By identifying various forms of e-mail overload, from a work sphere and private sphere relevance perspective, and by examining the impact of these sphere-based e-mail overloads on employees' well-being, we provide a comprehensive understanding of the nature and outcomes of e-mail overload in both worktime and leisure time contexts.

The main contributions of this paper are fourfold. First, we adopt a boundary perspective to conceptualize the understanding of employees' experience using e-mail during both working and leisure time. We employ a coping perspective to conceptualize the disadvantages of e-mail overload and to identify potential coping mechanisms to overcome them. Thus, we contribute to various disciplines, such as communication and media research, information systems, human resources management, and personal economics.

Second, while there is a lack of consensus on good practices in using e-mail (Gupta et al., 2011; Mark et al., 2016; Szóstek, 2011), we classify employees' experience using e-mail into various e-mail overload profiles. In addition, as the spatial and temporal flexibility of e-mail contributes to blurring the time boundary between the work and leisure spheres (Chesley, 2005, Eurofound & ILO, 2017, Yu et al., 2023), we pay attention to e-mail use during both worktime and leisure time. By doing so, we provide a classification of the forms of e-mail overload, extending the current body of research focused on some e-mail use and misuse during worktime or leisure time (Epley & Kruger, 2005; Jerejian et al., 2013; Martin et al., 2022). Furthermore, we examine the mediating role of various coping mechanisms highlighted in the literature as a

means of overcoming the drawbacks associated with e-mail overload (Giurge & Bohns, 2021; Letmathe & Noll, 2024).

Third, while the majority of existing literature correlates certain e-mail use or misuse with one or two direct (or indirect) measures of job stress, job satisfaction, or life satisfaction, it never considers all three dimensions of employees' subjective well-being, which this paper analyzes. Moreover, we examine not only the average effect across the whole sample, but also the heterogeneity between various sociodemographic groups (gender, age, and management responsibilities).

Fourth, Luxembourg is a relevant context to study and an interesting gap to fill, as many local firms provide portable devices to allow their staff to stay connected with their organizations when out of the office (in 2019, about 73% compared with 68% in the European Union, according to the Digital Economy & Society Index in the EU¹).

We next present the literature background on e-mail overload causes from a boundary perspective and on e-mail overload consequences from a coping perspective, along with the existing evidence that links e-mail use and overload to subjective well-being. Following that, we present the data and the methods we used and our findings. We conclude by examining the findings in the context of the existing literature and considering their implications for research and practice. We finally identify potential limitations and avenues for future research.

2 Literature Background

This section presents the literature background on the causes and consequences of e-mail overload from two perspectives: that of the boundaries between work and home life, and that

¹ <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20200115-1>.

of coping strategies to overcome the detrimental effects of e-mail overload. Second, it provides an overview of existing empirical research that links e-mail usage, misuse, or overload with at least one of the three dimensions of subjective well-being: job stress, job satisfaction, and life satisfaction.

2.1 E-mail overload antecedents from a boundary perspective

For work communication and collaboration purposes, employees use several digital media (Jackson & Farzaneh, 2012; Watson-Manheim & Bélanger, 2007) that are complementary, substitutable, and superposable. Among them, e-mail remains an important—if not the most important—communication tool (Letmathe & Noll, 2024). In addition, e-mail is distinctive because it enables three specific usages: the “umbrella e-mail” (I protect myself), the “visibility e-mail” (I make myself as visible as possible), and the transfer of information that may be false (gossip, rumors, and urban legends; Kibby, 2005). As it involves written communication, it can also lead to misinterpretation (Epley & Kruger, 2005).

The misuse of e-mail generates e-mail overload. Conventional ICT-mediated overload mainly covers information overload, communication overload, system feature overload, social overload, and interruption overload (Yu et al., 2023). Focusing on e-mail overload, we consider in this work the three most cited forms of e-mail overload: information overload (volume of e-mails), communication overload (frequency of e-mail usage), and cognitive overload (ability to process received information). We also consider the distinction between the worktime and leisure time contexts of e-mail use.

Information overload occurs when an employee deals with a volume of e-mail that is too important to be treated in time (Brown, 2007). It generates the feeling of having to manage too

much information in a minimum of time (Gupta et al., 2011). This is the most studied dimension of e-mail overload.

Communication overload is related to rapid frequency and/or employees having difficulty dealing with all the unsolicited messages they receive, compared with what they want (e.g., Eppler and Mengis, 2004; Reinke and Chamorro-Premuzic, 2014). The speed of communication of this asynchronous medium can create a culture of urgency and immediacy (Jerejian et al., 2013; Lanctot & Duxbury, 2021). The frequency with which e-mails enter the inbox creates interruptions, and may cause the dispersal syndrome, as e-mails generate distractions, stimuli, and the fear of missing out (FoMO; Mark et al., 2015; Wang et al., 2020). It also increases the effort to interpret e-mail content (Gupta et al., 2011; Stich et al., 2019). The recipient and the sender of e-mails are also important in emergency evaluation. For instance, employees may think they need to answer immediately if the e-mail comes from their superior or feel forced to answer even during leisure time. Communication overload that is generated by e-mail use can be amplified by use of many ICTs tools dealing with e-mail and other communication applications, such as instant messaging, social networking, shared storage systems, and video conferencing (Bahri et al., 2020; Tarafdar et al., 2023). In their work on communication overload, Stephens et al. (2017) identified seven dimensions composing communication overload: compromising message quality, having many distractions, using many information and communication technologies, pressuring for decisions, feeling responsible to respond, overwhelming with information, and piling up of messages. In our study, pressure and feeling responsible or guilty are emphasized.

Cognitive overload concerns the ability to process received information. For Reinke and Chamorro-Premuzic (2014), it occurs when the use of e-mails gets out of control—in other words, when employees are unable to find, cope with, or process the information contained in

their e-mail effectively. Eppler and Mengis (2004) emphasize that cognitive overload worsens when the amount of decision time begins to decrease. This occurs (i) if the volume of the information exceeds the capacity to process the information, ii) if the time required to process the information exceeds the time available, (iii) if the decision-maker feels that they must process more information from e-mail than they can efficiently process, or (iv) if the amount of information received by e-mail exceeds the amount of energy available to digest it. These causes may vary across employees and organization characteristics, the work tasks, and the way the technology is used (Eppler & Mengis, 2004). Attention theories and cognitive load theory theorize this cognitive overload (Letmathe & Noll, 2024). The first theory assumes that the total attention that can be used for different things is limited and that interference increases cognitive load so that attention can only be focused on one activity. The second theory distinguishes three types of cognitive overload: intrinsic, extraneous, and germane. It refers to the degree of complexity, inefficient presentation of the information, and new information matched with already existing information.

Moreover, the temporal aspect of the three dimensions of e-mail overload is also crucial, since the use of e-mail reduces the time available for employees to process other work tasks by generating interruptions (Gupta et al., 2011), creating an obligation of reactivity, a permanent sense of urgency (Fitz et al., 2019), and a use that often overflows into leisure time (Martin et al., 2022).

The argument for dealing with worktime and leisure time involves considering boundaries. Boundaries are broadly defined as “physical, temporal, emotional, cognitive, and/or relational limits” (Ashforth et al., 2000, p. 474) that help people make sense of the world around them and delineate one entity from another. The boundary-blurring and constant availability of ICTs allows individuals to be “always online” without strict boundaries between private and work

contexts (Chesley, 2005, Yu et al., 2023, Eurofound & ILO, 2017; Lal & Dwivedi, 2010). The balance between work and life, known as work–life balance, represents equilibrium between job demands and other life roles (Hasan et al., 2020). For Tarafdar et al. (2023), e-mail overload is positively associated with the role of overload related to work. The work–life balance can contribute to the perpetuation of an “always on” work culture. This is a prime focus in everyday discourses of life. The nature of work–life balance research is interdisciplinary, spanning social sciences, business, psychology, and economics (Verma et al., 2024).

In our study, we explore how employees’ experience using e-mail shapes the form of e-mail overload they face across a sample of employees working in Luxembourg by asking the following research question:

RQ1. Which forms of e-mail overload emerge from employees’ experience of using professional e-mail during worktime and leisure time?

2.2 E-mail overload consequences and adaptive solutions from a coping perspective

From a coping perspective, technostress—the stress caused by the use of digital technologies—is defined as “a problem of adaptation that an individual experiences when he or she is unable to cope with, or get used to, ICTs” (Tarafdar et al., 2007, p. 304). Various definitions of technostress include psychological, physical, and behavioral manifestations related to technostressors. Research has concentrated on the antecedents and consequences of technostress (Salo et al., 2018). Most studies on the consequences of technostress have focused on decreased job satisfaction, work engagement, or productivity (Ragu-Nathan et al. 2008; Tarafdar et al. 2007, 2010, 2015). Another reason the use of digital technologies, especially e-mail, can have a negative effect on employees’ subjective well-being is that it leads to greater workload (Barley et al., 2011; van Veldhoven et al., 2002).

According to the transactional theory of stress, in technostress research, overload, as a dimension of environmental demands or techno-stressors, is mainly appraised as stressful in a threatening way that induces adverse consequences for employees' subjective well-being (Ragu-Nathan et al., 2008; Stich et al., 2019; Tarafdar et al., 2007, 2019, 2023).

A body of research has evaluated the effectiveness of different coping mechanisms that employees can use to mitigate the negative effects of e-mail overload on their well-being. For example, e-mail coping strategies include “zero-inbox” (keeping the inbox as clean as possible), “to-do list” (keeping e-mails in the inbox as a reminder of things to do), “alertness” (keeping the inbox permanently open), “prioritization” (prioritizing the “must-dos” over the “would-be-nice-to-dos”), and “folder organization” (sorting e-mails into separate folders; Letmathe & Noll, 2024). Letmathe & Noll (2024) highlight that, among these five coping mechanisms, the zero-inbox and to-do list strategies facilitate enhanced e-mail management performance among individuals. The zero-inbox approach optimizes solely the efficacy of e-mail use, whereas the to-do list and prioritization mechanisms enhance work effectiveness. In the same effort to identify coping strategies, Wijngaards et al. (2022) or Kushlev & Dunn (2015) investigated for whom and under what circumstances e-mail message batching (i.e., processing e-mails only at certain times of the day or frequency) is effective for reducing e-mail interruptions and supporting well-being. Non-urgent work e-mails received during leisure time are perceived as more urgent by recipients than by senders (Giurge & Bohns, 2021). Giurge & Bohns (2021) showed that receivers overestimate senders' response speed expectations to non-urgent e-mails sent outside regular work hours (e.g., on the week-end), a phenomenon they labelled e-mail urgency bias. Therefore, individual's policies of reducing the e-mail urgency bias by explicitly noting their response speed expectations can be part of the solution. Nevertheless, there is a lack of consensus on best individual e-mail processing

strategy (Gupta et al., 2011; Mark et al., 2016; Szóstek, 2011). The individual choice of an e-mail management strategy may explain why some employees will check e-mail as soon as received (alertness), while some others will take their time and distinguish unforeseen demands from usual e-mails (Mark et al., 2015).

2.3 Existing empirical evidence relating e-mail overload and three different dimensions of subjective well-being

Subjective well-being refers to a person's overall evaluation of how satisfied they are with their work and private life. Subjective well-being has three distinguishing features: it is subjective, it includes positive and negative measures, and it includes a global assessment of all aspects of an individual's life (Diener, 1984). Nevertheless, none of the existing studies evaluates the three dimensions of subjective well-being.

The first dimension of employees' subjective well-being we focus on is job stress. We summarize the existing literature linking e-mail overload to job stress in Table 1. The majority of the existing studies focus on a limited range of e-mail-related usages, such as the volume and quality of e-mails received, the time spent managing e-mails, or the use of notifications (e.g., Barley et al., 2011; Brown et al., 2014; Kushlev & Dunn, 2015). Only a few assess the role of e-mail overload (Reinke & Chamorro-Premuzic, 2014). Furthermore, only a limited number of studies have examined the use of e-mail outside of normal working hours, and they have not identified a significant link with job stress (Martin et al., 2022).

Table 1. E-mail and job stress in the existing literature

Authors	Data	Population studied	Type of e-mail use studied	Outcome variable(s)	Main results
Arlinghaus & Nachreiner (2013)	European working condition survey 2005	Employed workers of 27 EU member states ($N = 23,760$)	Work-related contacts outside of regular working hours by e-mail or phone	Self-reported health impairment; sickness absence in the last 12 months	Positive link with health impairments and sickness absence
Barber & Santuzzi (2015)	Online survey, US	MTurk participants ($N = 303$)	E-mail use	Workplace telepressure, burnout, absenteeism, sleep quality	Positive link with workplace tele-pressure that predict burnout (physical and cognitive), absenteeism, sleep quality
Brown et al. (2014)	Survey, Australia	Administrative and academic staff from a university ($N = 15$)	E-mail at the workplace (quantity, quality)	Emotional exhaustion	A high quantity and poor quality of work e-mail are positively associated with emotional exhaustion
Büchler et al. (2020)	Online survey, Liechtenstein (L), Switzerland (S), 2017	Employees: automotive industry (L, $N = 274$) and technology industry (S, $N = 387$)	Constant connectivity to work due to use of mobile work devices	Mental well-being (covering active & vigorous, fresh & rested, cheerful & in good spirits, calm & relaxed)	No links with well-being. But constant connectivity and employee well-being relationship is mediated by psychological detachment
Dettmers et al. (2016)	8 days of daily surveys, Germany	Individuals from 13 organizations ($N = 132$; 51 with measures of morning cortisol levels)	Mobile communication technologies outside working hours	Valence, energetic arousal, calmness, cortisol awakening response	Negative relation with valence, energetic arousal, calmness. Positively related to cortisol awakening response
Fitz et al. (2019)	Randomized field experiment, India	MTurk participants ($N = 237$)	Smartphone notification	Attention, mood, stress, interruption, productivity	Three-times-a-day notifications reported lower stress compared to those in the control condition (around eighty-times-a-day)
Jerejian et al. (2013)	Survey, Australia	Academics from a university ($N = 114$)	E-mail volume, e-mail management (and propensity to worry)	E-mail stress	E-mail volume (and worry) positively linked to e-mail stress

Kushlev & Dunn (2015)	Two weeks experiment	Adults ($N = 124$)	Frequency of checking e-mail	Daily stress and well-being like sleep quality	Limited e-mail use is negatively linked to daily stress. Lower stress, in turn, predicted higher sleep quality
Martin et al. (2022)	Online survey, Luxembourg, 2013	Employees ($N = 14,685$)	Being contacted regularly outside office hours by e-mail or phone	Job stress intensity, health problems intensity	Not related to job stress intensity and health problems intensity
Misra et al. (2020)	Online survey and qualitative interviews, US	Emergency managers (survey $N = 273$, interviews $N = 19$)	Perceived information overload from digital sources (mainly e-mail)	Perceived stress	Positive link with higher levels of perceived stress
Reinke & Chamorro-Premuzic (2014)	Online survey, US, UK, Canada, Germany	Employees and managers ($N = 201$)	E-mail overload	Burnout	Positive link with higher levels of burnout
Schieman & Young (2013)	Canadian Work, Stress, and Health Study, 2011	Working adults ($N = 5,729$)	Sending and receiving of work-related communications outside of regular work hours	Psychological distress and sleep problems	Positive link to psychological distress and sleep problems
Stich et al. (2019)	Online survey, US	Employees ($N = 118$)	E-mail (mis)fit: e-mail supplies and e-mail values	3 stressors: work relationships, job control, job conditions	Both too much e-mail and too little, compared to what is desired, increase all stressors
Stich et al. (2017)	Online survey and qualitative interviews, US, France	Employees (survey, $N = 504$), managers in headquarters of a multinational IT company (interviews, $N = 23$)	Actual and desired use of e-mail and other tools as instant messaging, video-conference, enterprise social networking	Workplace stressors	Actual and desired use of e-mail are strongly related to workplace stressors. The links with other tools are not very high
Ter Hoeven et al. (2016)	Online survey, Netherlands, 2014	Employees ($N = 663$)	Communication technology use	Burnout	It reduces burnout through accessibility and efficiency and increases it through interruptions and unpredictability

Wijngaards et al. (2022)	Online surveys, Netherlands	Employees, Dutch financial services ($N = 112$)	E-mail volume, e-mail batching	Emotional exhaustion	E-mail batching reduces emotional exhaustion
Wright et al. (2014)	Online survey, US	Employees ($N = 168$)	Number of minutes/ hours spent each week communicating via technologies (97% by e-mail) with super-visors, coworkers, or for work-related tasks	Burnout	It contributed to perceptions of work life conflict. Work life conflict induces job burnout

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In addition, most of the papers analyzing the relationship between e-mail use and job stress have used indirect measures of mental well-being, including emotional exhaustion and burnout (the extreme consequence of job stress). There is a relatively limited body of research examining perceived job stress, with notable exceptions such as Kushlev & Dunn (2015), Misra et al. (2020), and Martin et al. (2022). Most studies conclude that e-mail misuse is detrimental to employees' mental well-being and that coping mechanisms can help overcome the negative effects (Wijngaards et al., 2022).

Nevertheless, none of the existing studies provides a comprehensive assessment of the extent to which e-mail overload in a work/life context appears and influences job stress.

The second dimension of subjective well-being we analyze is job satisfaction. Again, the existing literature provides evidence linking e-mail use rather than e-mail overload with job satisfaction. We summarize the existing literature linking e-mail use to job satisfaction in Table 2. In comparison with job stress, there is very little evidence of a link between e-mail overload and job satisfaction. In addition, the results are mixed, ranging from positive to negative, directly or indirectly.

Table 2. E-mail and job satisfaction in the existing literature

Authors	Data	Population studied	Type of e-mail use studied	Outcome variable(s)	Main results
Diaz et al. (2012)	Survey sent by e-mail, US	Employees of a university ($N = 193$)	Communication technologies (phone, e-mail and others)	Work satisfaction	Positive link with work satisfaction
Tarafdar et al. (2023)	Qualitative interviews, a survey	Manufacturing organization managers (interview, $N = 11$), employees (survey, $N = 134$)	E-mail by default, e-mail overload, e-mail-enabled productivity	Job satisfaction	E-mail by default is positively linked to e-mail overload and negatively linked to e-mail-enabled productivity. E-mail overload is negatively linked to e-mail-enabled productivity. E-mail-enabled productivity is positively linked to job satisfaction
Wright et al. (2014)	Online survey, US	Employees ($N = 168$)	Number of minutes/ hours spent each week communicating via technologies (97% by e-mail) with supervisors, coworkers, or for work-related tasks	Job satisfaction	It contributes to perceptions of work life conflict. Work life conflict predicts job satisfaction

The third dimension of employees' subjective well-being that is the focus of our attention is life satisfaction. Again, the existing literature provides evidence that e-mail use, rather than e-mail overload, is associated with life satisfaction. We summarize the existing literature linking e-mail overload to life satisfaction in Table 3. Only one paper provides direct evidence on life satisfaction, while others indirectly relate e-mail use to life satisfaction through a focus on work–family conflict. For instance, with a specific focus on the use of e-mail outside working hours, existing evidence shows that it reinforces work–life conflicts (Boswell & Olson-Buchanan, 2007; Diaz et al., 2012; Duxbury et al., 2014), and lowers life satisfaction (Martin et al., 2022).

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Table 3. E-mail and life satisfaction in the existing literature

Authors	Data	Population studied	Type of e-mail use studied	Outcome variable(s)	Main results link to our paper
Boswell & Olson-Buchanan (2007)	Offline survey, US	Non-academic staff of a university ($N = 395$)	Communication technologies uses outside working hours (cell phone, e-mail, voice mail, PDAs, pagers)	Work-to-life conflict	Positive link with employee work-to-life conflict
Diaz et al. (2012)	Survey sent by e-mail, US	Employees of a university ($N = 193$)	Communication technology (cellular phone, e-mail, and others)	Work-to-life conflict	Positive link with higher levels of work-to-life conflict
Duxbury et al. (2014)	Telephone interviews, Canada, 2007/08	Executives, large multinational pharmaceutical organization ($N = 25$)	Use of mobile devices (BlackBerry)	Work-family boundary, boundary management strategies	The link with work-family boundary is not significant and depends on the boundary strategy: integrators, segmentors, struggling segmentors
Lal & Dwivedi (2010)	Qualitative interviews	Homeworkers ($N = 25$)	Being connected via mobile phones outside working hours	Leisure time contactability	Individuals become connected and contactable at “anytime, anywhere”. But homeworkers took various actions in order to control their contactability
Martin et al. (2022)	Online survey, Luxembourg, 2013	Employees ($N = 14,685$)	Being contacted regularly outside office hours by e-mail or phone	Life satisfaction	Negative link with life satisfaction
Schieman & Young (2013)	Canadian Work, Stress, and Health Study, 2011	Working adults ($N = 5,729$)	Sending/receiving work-related communications outside working hours	Work-to-family conflict	Positively link to work-to-family conflict
Wright et al. (2014)	Online survey, US	Employees ($N = 168$)	Number of minutes/ hours they spent each week using communication technologies (97% by e-mail)	Work-to-life conflict	It contributes to perceptions of work-to-life conflict. But a positive attitude towards communication technologies predicted decreased work-to-life conflict.

Building on this indirect existing evidence on how e-mail overload affects employees' subjective well-being, we will investigate the relationships between forms of e-mail overload (RQ1) and three dimensions of subjective well-being: job stress, job satisfaction and life satisfaction. We pose the following research question:

RQ2. How do the forms of e-mail overload affect employees' subjective well-being?

Consequently, our research model (see Figure 1), based on the boundary perspective, aims, first, to distinguish employees' experience using e-mail during worktime and leisure time into employees' profiles of e-mail overload. Second, we investigate the link between employees' e-mail overload profiles and subjective well-being. From a coping perspective, we assess the role of coping mechanism strategies in mitigating the relationship between e-mail overload and subjective well-being. Additionally, we examine not only the average effect across the sample, controlling for individual, job, and workplace characteristics, but also the heterogeneity across different sociodemographic groups (gender, age, managerial responsibilities).

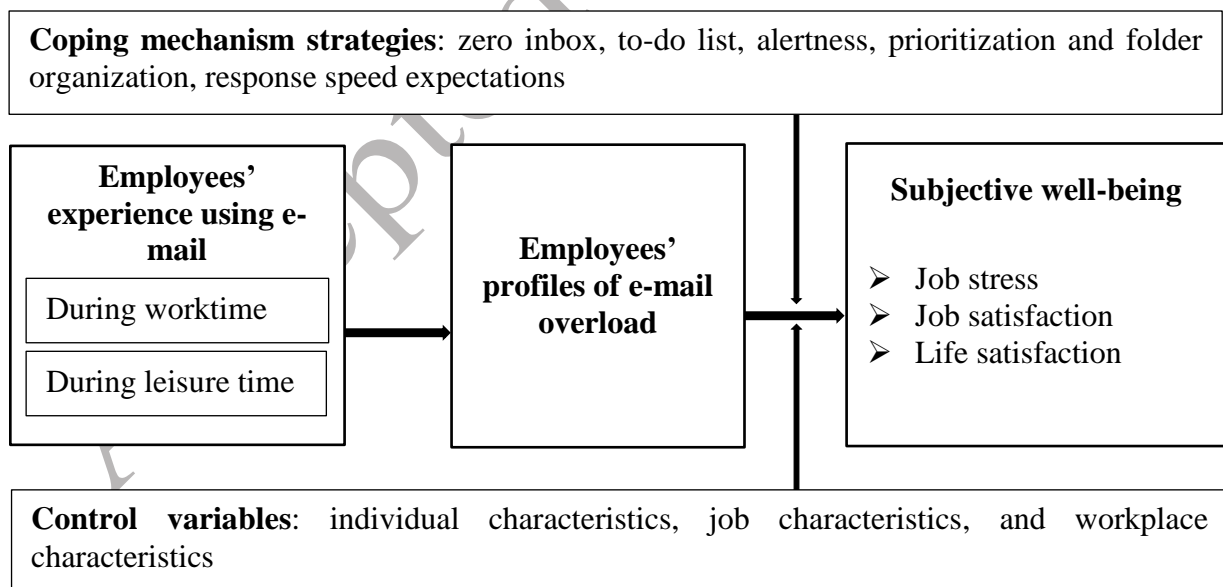


Figure 1. Research model

3 Data and Methods

3.1 Data collection

To conduct our analysis, we use data collected in the framework of the European Social Fund (ESF) project entitled “Info Flow Savvy” led by IMS—Inspiring More Sustainability, Luxembourg²—and gathered by the Luxembourg Institute of Socio-Economic Research (LISER). IMS and LISER developed the items for the survey by drawing both on the literature on e-mail usage, misuse, and overload and on discussions with external stakeholders from the Ministry of State, the Ministry of Labor, Employment, and Social Economy, the Chamber of Commerce, and the Chamber of Employees of the Grand Duchy of Luxembourg. The data were collected, during the summer of 2019, with an online questionnaire available in both French and English. The final sample collected includes 1,372 employees working in 107 firms located in Luxembourg living either in the country or in cross-bordering countries (Belgium, France, and Germany). According to the size of the firm and the economic sector it operates in and the gender, nationality, and age of the employees, we adopted a weighting procedure to obtain representative results for the studied working population.

In comparison with other countries, Luxembourg’s labor market is characterized by a high proportion of foreign employees. Foreign workers represent 73.3% of the total number of people employed in 2019,³ compared with 8.3% in the European Union, consisting of 15 countries.⁴ Within firms having at least 10 employees, the percentage of employees using the Internet at work was 45.8% in 2018 according to OECD data, less than in other European

² For more than 10 years, IMS has been the leading network of Luxembourg firms involved in corporate social responsibility (CSR).

³ <https://adem.public.lu/fr/marche-emploi-luxembourg/statistiques/statistiques/igss.html>.

⁴ https://ec.europa.eu/eurostat/databrowser/view/lfsa_pganws/default/table?lang=en.

countries, especially border countries: 58.5% in Belgium, 58.1% in Germany, and 60.9% in France. In 2016, according to Eurostat,⁵ more than three out of four of Luxembourg's firms provided portable devices with mobile Internet connection to their staff, far greater than the seven out of ten provided by European firms.

3.2 The outcome variables: Three subjective well-being variables

We investigate the relationships that exist between e-mail overload, coping mechanisms, control variables (see Figure 1), and subjective well-being measured by three variables: job stress, job satisfaction, and life satisfaction.

To measure job stress, employees indicated the frequency with which they suffered from job stress. Employees had to choose between six levels of frequency from “never” to “every day.” In the questionnaire “never” takes the value 1, “less than once a month” the value 2; “at least once a month” the value 3; “once a week” the value 4; “more than once a week” the value 5; and “every day” the value 6.

Life satisfaction is a global evaluative judgement made by an individual about the overall state of her/his life using a 0–10 scale (from 1 for employees who are completely unsatisfied to 10 for employees who are completely satisfied). An identical format is used to measure employees' job satisfaction. Due to low frequencies in dissatisfaction levels, we grouped some point scales (0 with 1; 2 and 3 with 4) and created studied variables that go from 1 to 8 (Table 4).

⁵ <https://ec.europa.eu/eurostat/web/digital-economy-and-society/data/database>.

Table 4. Descriptive statistics of the three subjective well-being measures

Subjective well-being measures	Number of observations	Mean	Standard deviation	Min	Max
Job stress	1,372	4.141	1.497	1	6
Job satisfaction	1,372	4.777	1.905	1	8
Life satisfaction	1,372	4.727	1.924	1	8

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: Weighted statistics.

To reduce the time and cost for the survey, we opted to utilize single-item measures. It is noteworthy that all the single-item measures we used correlate highly with longer multiple-item counterparts. The efficacy of single-item measures of stress has been validated against multi-item measures in multiple studies (Gilbert & Kelloway, 2014; Littman et al., 2006). A job satisfaction single item was also validated by Pelly et al. (2022) in comparison with the Abridged Job Descriptive Index (AJDI developed by Stanton et al., 2002). Cheung & Lucas (2014) validated the use of a single-item life satisfaction, highlighting a performance comparable to that of the multiple-item Satisfaction with Life Scale (SWLS developed by Diener et al., 1985).

Given that the three subjective well-being variables are ordered, the models to be adopted are ordered models such as ordered Logit or ordered Probit. Given that these two types of model can be used interchangeably because they provide similar results (Davidson & MacKinnon, 1984), we have chosen to adopt an ordered Logit model.⁶ To gain insight into the differences between employees’ e-mail overload profiles and coping mechanisms, we run a number of independent ordered logit models. This number will be equal to the number of outcome

⁶ We use Stata 17 to run the Ordered Logit models.

variables (three) multiplied by the number of groups identified by the clustering analysis (see hereafter) and the introduction or not of coping versus no coping mechanisms.

In this study, the relationship between e-mail overload profiles and the three subjective well-being variables with the greatest possible accuracy is measured using odds ratios. The primary objective of the odds ratio is to quantify and assess the probability of an event occurring. In more specific terms, the odds ratio is calculated by relating the number of times the event may occur to the number of times the event will not occur (Allison, 2001). For example, if the odds ratio is 1.5, this indicates that the probability of experiencing the event is 50% higher than the probability of not experiencing the event. Conversely, if the odds ratio is equal to 0.7, this indicates that the probability of knowing the event is 30% lower than that of not knowing it.

3.3 Forms of e-mail overload derived from employees' experience using e-mail

Grounded in the literature assessing e-mail usage, misuse, and overload in a worktime or a leisure time context (e.g., Jerejian et al., 2013; Stich et al., 2019), we differentiated 19 practices of employees regarding their experience using professional e-mail covering e-mail misuse in the work and leisure environments and work context for e-mail use. Details regarding the questions employed in the study can be found in Appendix A. In contrast to numerous studies that concentrate on particular elements of e-mail usage or misuse, our approach encompasses a more comprehensive range of employees' experiences using professional e-mail.

First, we cover, as usual, the number of e-mails received (e.g., Brown et al., 2014; Jerejian et al., 2013). Second, while a lot of studies focus on working outside working hours (e.g., Arlinghaus & Nachreiner, 2013; Schieman & Young, 2013), we cover e-mail both use during worktime and during leisure time (e.g., Martin et al., 2022). Third, we cover the fear of missing out (FoMO) approach (Fitz et al., 2019) with the feeling of being forced to answer and guilt in

not answering that employees have when they receive e-mail and need to answer immediately. Fourth, we examine the individual-to-group process of e-mail exchange between the receivers and senders (Addas & Pinsonneault, 2018), covering superiors, colleagues, staff, and customers, expanding the coverage of supervisors and colleagues done by Wright et al. (2014). Finally, we add the frequency of useless e-mails and the difficulty in managing e-mails. For the work context of e-mail use, the variables cover the reception of too much information during the day, the pace of work affected by unforeseen demands, and the time employees get to work without being interrupted. The consistency of the Cronbach's α of all 19 measures together is good (0.829; Hair et al., 2006).

To identify employees' e-mail overload profiles, we synthesized the information from the 19 practices of employees' experience using e-mail by clustering them, using the *K*-means clustering algorithm.⁷ We chose the number of clusters or groups using the dendrogram (see Appendix B, Figure B1) and the "elbow" method by identifying a slope reduction (or a stable slope or an increase) at a point on the graphic of the sum of the squared distances (see Appendix B, Figure B2).⁸

⁷ We use Python 3 to run the *K*-means algorithm on scaled values of the 19 variables.

⁸ It is important to note that the *K*-means algorithm is a data clustering method that partitions data into *K* distinct, non-overlapping subsets (clusters) based on the degree of similarity observed between them. The algorithm is unsupervised and seeks to identify the optimal centroid for each cluster. In contrast to principal component analysis (PCA) followed by hierarchical ascendant classification (HAC), which involves two separate steps, the former transforms high-dimensional data into a lower-dimensional space while preserving the essential information. The latter builds a hierarchy of clusters by merging the closest pair of clusters iteratively. In contrast, the *K*-means algorithm requires only a single step. Moreover, *K*-means is capable of capturing non-linear relationships and intricate cluster boundaries within the original feature space, whereas PCA and HAC perform linear dimensionality reduction, resulting in the loss of non-linear aspects. Nevertheless, the two outputs are relatively similar in this case, with a small number of respondents that are not in the same cluster using both methods.

3.4 Coping mechanisms

A survey question on employees' actual professional e-mail management behavior was employed to identify the coping mechanisms used by employees, as identified in the literature that analyzes employees' coping strategies (Letmathe & Noll, 2024; Giurge & Bohns, 2021). Based on the correlation between items, we grouped survey items related to different coping mechanisms. Details of the survey items used are provided in Appendix A. The zero inbox strategy refers to employees' willingness to have an informative overview of e-mails without accumulating information by using an inbox-clearing activity. The to-do list strategy corresponds to using the inbox as a reminder of things that need to be done. The alertness strategy involves employees' willingness not to see e-mail accumulate at the expense of being interrupted by incoming e-mail. Due to data limitation, we merged the prioritization strategy and folder organization strategy. Both are used to structure work-related e-mails in a rigorous and structured way. Finally, we measure whether senders explicitly state their response speed expectations, as a strategy to reduce the e-mail urgency bias (Giurge & Bohns, 2021). To ensure consistency, the coping mechanisms have been standardized to have a mean of 0 and a standard deviation of 1.

3.5 Control Variables

In our regressions, we control for a broad range of individual characteristics: gender, age, nationality, being in a couple or not, having child(ren) or not, education level, transport mode to the workplace, and commuting time. We also control for other job characteristics that can be related to employees' subjective well-being: occupation, working full time or not, management responsibilities and having direct contact with people outside the firm, and workplace characteristics: firms' business sectors and sizes. Appendix C, Table C1 presents

the control variables introduced in the analyses. Furthermore, the heterogeneity of our results is assessed by considering the variables of gender, age, and management responsibilities.

4 Main Results

The presentation of the empirical results is divided into two parts. The first part presents the identification of the different groups of employees sharing similar forms of e-mail overload. The second part presents the analyses of the relationships between employees' belonging to ones of the groups defined in part one (three groups) and their subjective well-being.

4.1 Research Question 1: Which forms of e-mail overload emerge from employees' experience using professional e-mail during worktime and leisure time?

When we classify employees according to the 19 variables that describe employees' experience using e-mail (covering e-mail misuse practices and work context around the use during worktime and leisure time), we obtain three groups (cf. Appendix B, Table B1). A first group of employees covers 43.2% of the studied population who share similar behavior in e-mail misuse and work context of e-mail use. They are close to the average of the whole sample in their number of e-mails received, the time dedicated to managing e-mails, the frequency of useless e-mails received, and the number of difficulties they encounter in finding information in their e-mails. They are above average on variables that measure e-mail use during work time. Conversely, they are below average on variables that capture e-mail use during leisure time. Compared with the average, they face more unforeseen demands at work, have received too much information, and are more frequently interrupted in their work. In sum, these employees face e-mail overload only during their worktime. We called this group "Worktime e-mail overload."

A second group consists of 18.7% of the studied population. Compared with the average these employees take more time to manage their e-mails, receive more e-mails, more frequently receive useless e-mails, and face more difficulties in finding information in their e-mails. Compared with the average, they face more unanticipated work demands, agree more that they receive too much information, and are more frequently interrupted in their work. They are over-represented for all variables that are linked to behavior in responding to e-mails during both worktime and leisure time. Indeed, these employees face e-mail overload all of the time. We called this group “All time e-mail overload.”

The third group comprises 38.1% of the studied population. Compared with the average and the other two profiles, employees in this group are less concerned about e-mail misuse generating e-mail overload. In addition, they enjoy more time without being interrupted in their work. In other words, for these employees, e-mail use is not a critical situation. For instance, they do not feel forced to answer e-mails without delay. These employees do not face e-mail overload. We called this group “No e-mail overload.”

Therefore, our results identify three profiles of e-mail overload: Worktime e-mail overload, All-time e-mail overload, and No e-mail overload.⁹

⁹ It is also noteworthy that employees can use a variety of digital tools for their professional activities, including instant messaging applications such as Messenger and WhatsApp (Bahri et al., 2020). As might be expected, approximately 80% of employees in the “No e-mail overload” profile do not use such tools, while only 50% of employees in the “All-time e-mail overload” profile and 68% of the “Worktime e-mail overload” profile do not use these tools. Moreover, 16% of those experiencing all-time e-mail overload and 15% of those experiencing worktime e-mail overload use these tools several times a day.

4.2 Research Question 2: How do the forms of e-mail overload affect employees' subjective well-being?

Table 5 summarizes the links that exist between employees belonging to one of the three e-mail overload groups and the job stress dimension of subjective well-being (Appendix C Table C2 presents the results of all variables including the control ones).

Table 5. E-mail overload groups and employees' job stress—Main results

	Job stress					
	Model 1.1	Model 1.2	Model 2.1	Model 2.2	Model 3.1	Model 3.2
E-mail overload groups						
Worktime e-mail overload	2.060*** (0.213)	2.028*** (0.211)	—	—	—	—
All time e-mail overload	—	—	2.545*** (0.371)	2.493*** (0.369)	—	—
No e-mail overload	—	—	—	—	0.247*** (0.0281)	0.250*** (0.0288)
Coping mechanisms						
Zero inbox	—	0.993 (0.0519)	—	0.946 (0.0492)	—	1.000 (0.0527)
To-do list	—	1.105** (0.0544)	—	1.116** (0.0550)	—	1.084 (0.0539)
Alertness	—	1.098* (0.0565)	—	1.055 (0.0550)	—	1.010 (0.0527)
Folder/prioritization	—	1.065 (0.0541)	—	1.062 (0.0541)	—	1.037 (0.0529)
Response speed expectations	—	0.953 (0.0483)	—	0.948 (0.0480)	—	0.932 (0.0475)
Individual characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Workplace characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1372	1372	1372	1372	1372	1372

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: Odd ratios, standard errors in parentheses. Weighted estimates.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

The results show that employees who are concerned with e-mail overload at work (Model 1.1), or during both work and leisure time (Model 2.1), have a greater risk of being stressed at work

than those with no e-mail overload (Model 3.1). These overall results are aligned with other works that emphasize that different usages of e-mail are significantly associated with higher levels of stress or related measures (e.g., Kushlev & Dunn, 2015; Misra et al., 2020). More specifically, we observe that stress at work is linked to e-mail overload during worktime (Model 1.1). Job stress is multiplied by 2 for employees who face e-mail overload during worktime and by 2.5 for those who face e-mail overload during worktime and leisure time (Model 2.1). At the opposite end of the scale, the risk of being stressed at work is reduced by 75% for employees who do not face e-mail overload (Model 3.1).

The introduction of coping mechanisms has no impact on the magnitude and significance of the odds ratios associated with the three e-mail overload groups (see Models 1.2, 2.2 and 3.2). Although Letmathe & Noll (2024) emphasize that a to-do list strategy enhances e-mail management performance and work effectiveness, our findings highlight that the implementation of this strategy is linked to an increased prevalence of job-related stress among the two employee groups facing e-mail overload. Moreover, the alertness strategy is a factor of job stress, specifically for employees who face e-mail overload during worktime, while not significant in the analysis of e-mail management performance by Letmathe & Noll (2024).

Table 6 summarizes the links that exist between employees belonging to one of the three e-mail overload groups and the job satisfaction dimension of subjective well-being (Appendix C, Table C3 presents the results of all variables including the control ones).

Table 6. E-mail overload groups and employees' job satisfaction—Main results

	Job satisfaction					
	Model 1.1	Model 1.2	Model 2.1	Model 2.2	Model 3.1	Model 3.2
E-mail overload groups						
Worktime e-mail overload	0.532*** (0.0543)	0.532*** (0.0546)	—	—	—	—
All time e-mail overload	—	—	0.915 (0.131)	0.945 (0.137)	—	—
No e-mail overload	—	—	—	—	2.119*** (0.228)	2.103*** (0.230)
Coping mechanisms						
Zero inbox	—	1.026 (0.0535)	—	1.051 (0.0546)	—	1.035 (0.0539)
To-do list	—	0.973 (0.0470)	—	0.957 (0.0459)	—	0.978 (0.0471)
Alertness	—	0.878** (0.0449)	—	0.872*** (0.0449)	—	0.909* (0.0468)
Folder/prioritization	—	0.965 (0.0487)	—	0.964 (0.0486)	—	0.980 (0.0494)
Response speed expectations	—	1.178*** (0.0595)	—	1.165*** (0.0588)	—	1.189*** (0.0599)
Individual characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Workplace characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1372	1372	1372	1372	1372	1372

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: Odd ratios, standard errors in parentheses. Weighted estimates.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

The results highlight that e-mail overload during both work and leisure time is not linked to job satisfaction (Model 2.1). In contrast, e-mail overload is negatively linked to job satisfaction when employees face e-mail overload during worktime. Job satisfaction is reduced by 47% in this case (Model 1.1). Job satisfaction is multiplied by 2.1 for employees who do not face e-mail overload (Model 3.1).

As for job stress, the introduction of coping mechanisms has no impact on the magnitude and significance of the odds ratios associated with belonging to one of the three e-mail overload groups (see Table 6, Models 1.2, 2.2, and 3.2). In terms of the coping mechanisms, only the alertness strategy and the response speed expectations strategy are associated with job

satisfaction, albeit in opposing ways. Indeed, alertness has been found to reduce job satisfaction by 10 to 12% for all employees, even those not facing e-mail overload. Conversely, the utilization of response speed expectations when composing e-mails enhances the job satisfaction of all employees by 38–44%. As suggested by the work of Giurge & Bohns (2021), this is a good way to reduce the e-mail urgency bias.

Table 7 summarizes the links that exist when employees belong to one of the three e-mail overload profiles and the life satisfaction dimension of subjective well-being (Appendix C Table C4 presents the results of all variables including the control ones).

Table 7. E-mail overload groups and employees’ life satisfaction—Main results

	Life satisfaction					
	Model 1.1	Model 1.2	Model 2.1	Model 2.2	Model 3.1	Model 3.2
E-mail overload groups						
Worktime e-mail overload	0.658*** (0.0664)	0.671*** (0.0682)	—	—	—	—
All time e-mail overload	—	—	0.675*** (0.0978)	0.707** (0.103)	—	—
No e-mail overload	—	—	—	—	1.995*** (0.215)	1.924*** (0.211)
Coping mechanisms						
Zero inbox	—	1.014 (0.0525)	—	1.045 (0.0539)	—	1.017 (0.0525)
To-do list	—	0.991 (0.0481)	—	0.981 (0.0475)	—	0.994 (0.0482)
Alertness	—	0.829*** (0.0427)	—	0.828*** (0.0428)	—	0.857*** (0.0446)
Folder/prioritization	—	0.967 (0.0490)	—	0.970 (0.0491)	—	0.977 (0.0496)
Response speed expectations	—	1.092* (0.0550)	—	1.083 (0.0545)	—	1.105** (0.0557)
Individual characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Job characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Workplace characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1372	1372	1372	1372	1372	1372

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: Odd ratios, standard errors in parentheses. Weighted estimates.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

The results show that e-mail overload impairs life satisfaction. E-mail overload during worktime reduces life satisfaction by around 33% (Model 1.1). E-mail overload during both worktime and leisure time reduces life satisfaction by around 30% (Model 2.1). Life satisfaction is increased by around 95% for employees who do not face e-mail overload (Model 3.1).

The introduction of coping mechanisms has a negligible effect on the magnitude and significance of the odds ratios associated with belonging to one of the three e-mail overload groups (see Table 7, Models 1.2, 2.2, and 3.2). With regard to the coping mechanisms, as with job satisfaction, the alertness strategy has a detrimental effect on life satisfaction for all employees. Conversely, the response speed expectations strategy has a beneficial effect on life satisfaction among employees who suffer from a worktime e-mail overload and those who are not concerned with any forms of e-mail overload.

4.3 Heterogeneity effects related to sociodemographic characteristics

Little existing research provides evidence on how different sociodemographic groups experience using e-mail, face different forms of e-mail overload, and are impacted in their subjective well-being. As underlined by Martin et al. (2022) or Gui & Büchi (2019), gender, age, and supervision role are important factors to consider.

4.3.1 Job stress

In terms of job stress (see Figure 2), our findings indicate that employees, regardless of gender, age, or supervision role, benefit from having a No e-mail overload profile. Furthermore, in the Worktime e-mail overload profile, only managers do not experience an increase in their job stress, while seniors (50 years and more) and non-managers are the most impacted. In the All time e-mail overload profile, only senior employees are not significantly affected. Managers

and women have the greatest magnitude. Regarding age, some studies emphasize that seniors possess fewer digital skills than youngsters (Cotten, 2021; Francis et al., 2019) or do not have the right skills to master Internet skills (Van Deursen and van Dijk, 2015, Van Deursen et al., 2012), which may hamper their managing their e-mail use. This may be why seniors are more susceptible to belonging to the Worktime e-mail overload profile than their junior colleagues. Moreover, seniors were shown to have different disconnection experiences (Nguyen et al., 2022), which may explain why they are not affected by All time e-mail overload. The result on women is in line with the existing evidence, showing that women suffer more from digital overuse (Gui & Büchi, 2019), and have a use of digital tools outside working hours that increases their job stress (Martin et al., 2022).

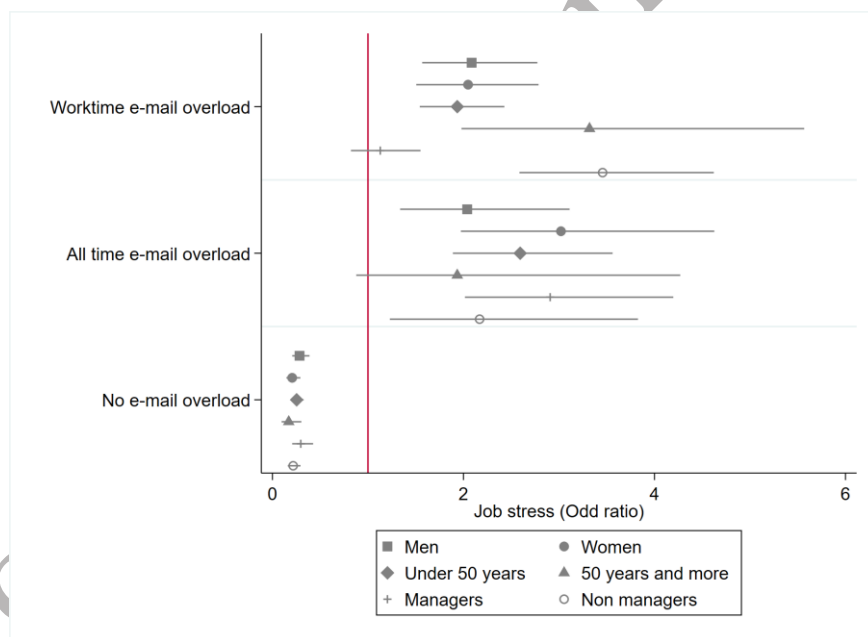


Figure 2. Employees’ job stress—sociodemographic main results on e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a square represents the odds ratio for men. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

With regard to coping mechanisms (see Figure 3), our results highlight that men experienced an increase in job stress when using a to-do list or folder/prioritization strategy, whatever their

e-mail overload profiles, while the zero inbox mechanism is beneficial for those belonging to the All time e-mail overload profile. Non-managers are also more stressed when using a to-do list, alertness, or folder/prioritization strategy in the All time e-mail overload profile.

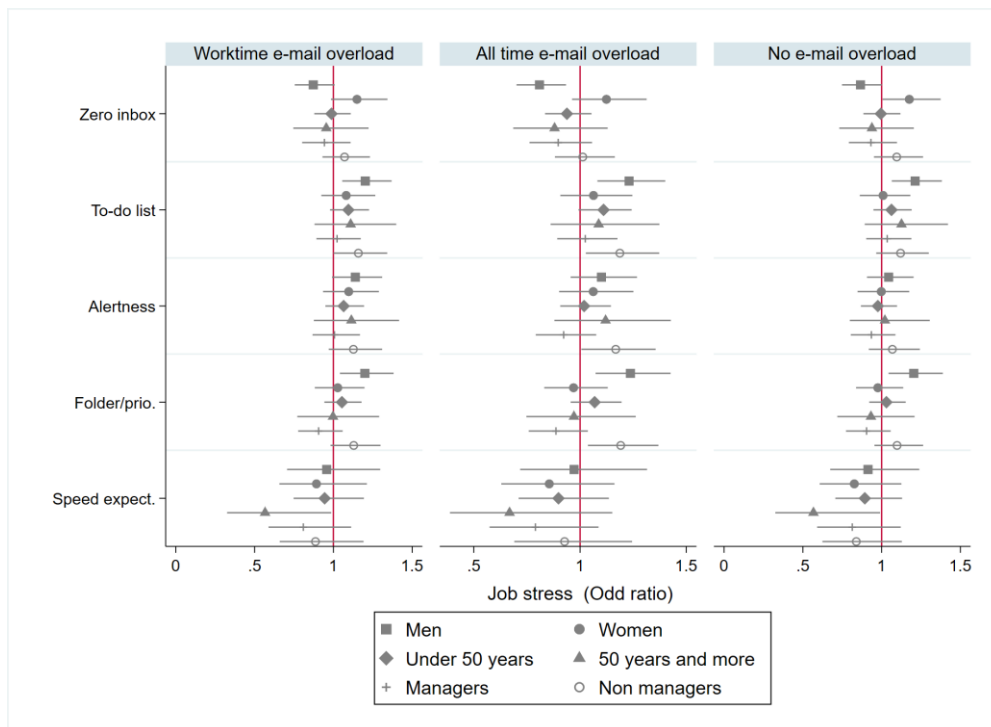


Figure 3. Employees' job stress—sociodemographic main results on coping mechanisms by e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a square represents the odds ratio for men. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

4.3.2 Job satisfaction

With regard to job satisfaction (see Figure 4), the results previously highlighted for employees (Table 6) are also found across all sociodemographic groups. It is noteworthy that the senior group, who adhere to the no e-mail overload profile, are the most significantly benefited.

With regard to coping mechanisms (see Figure 5), our results show that the response speed expectation strategy is beneficial to men, those under 50 years, and managers, whatever their e-mail overload profile. Managers are less satisfied at work when they use the alertness

mechanism, no matter what their e-mail overload profile is. Seniors are less satisfied at work when they use the to-do list strategy.

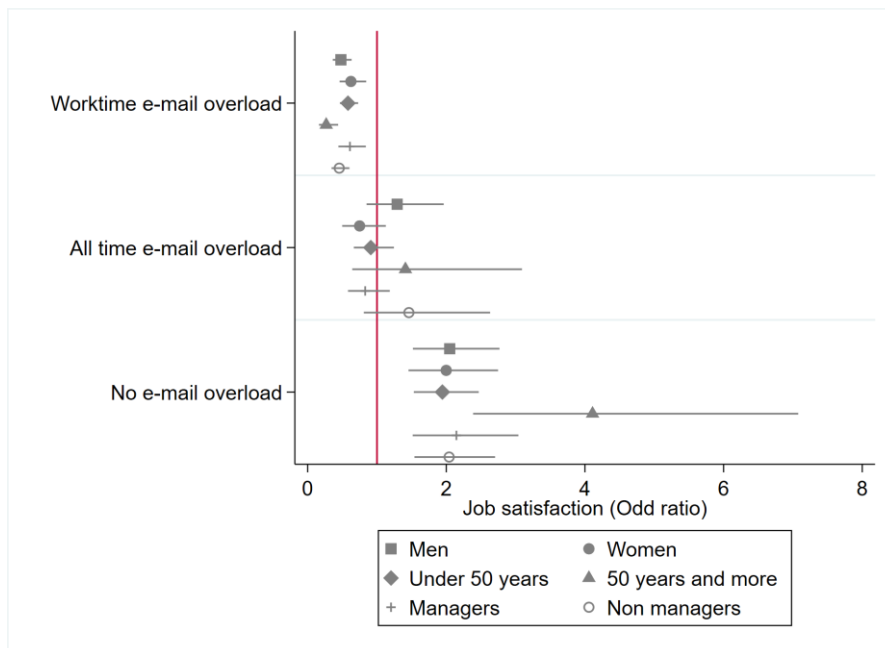


Figure 4. Employees' job satisfaction—sociodemographic main results on e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a square represents the odds ratio for men. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

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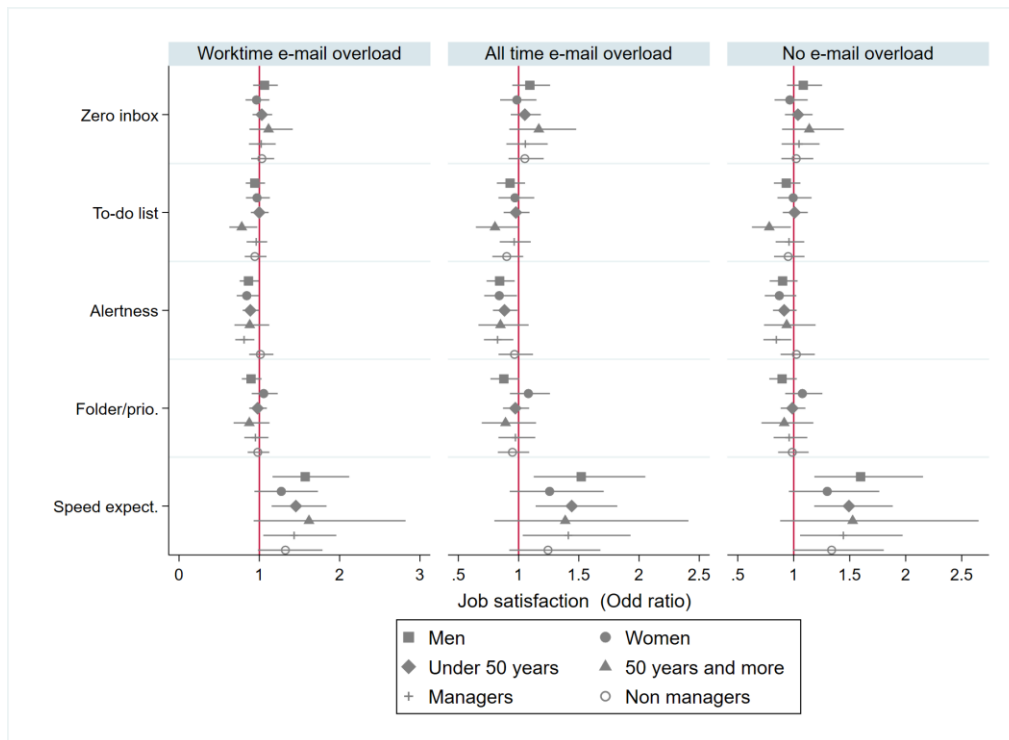


Figure 5. Employees' job satisfaction—sociodemographic main results on coping mechanisms by e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a square represents the odds ratio for men. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

4.3.3 Life satisfaction

With regard to life satisfaction (see Figure 6), the reduction of life satisfaction we had previously highlighted for employees belonging to the Worktime e-mail overload profile (Table 7) disappears for women and seniors. While belonging to the All time e-mail overload profile was negative for the entire sample, only women and managers suffer from a reduction of life satisfaction. For those who belong to the No e-mail overload profile, no sociodemographic differences appear; all employees benefit from belonging to this group. The gender differences we found for job stress and life satisfaction for the All time e-mail overload profile corroborate the results of Martin et al. (2022) showing that women have difficulties in handling their household obligations and their work duties at the same time when they stay connected to their work outside working hours. When they are in couples, women pursue a

“double career” in the sense that despite their work career they also have a “housewife career” by taking care of most of the domestic work (Bittman et al., 2003).

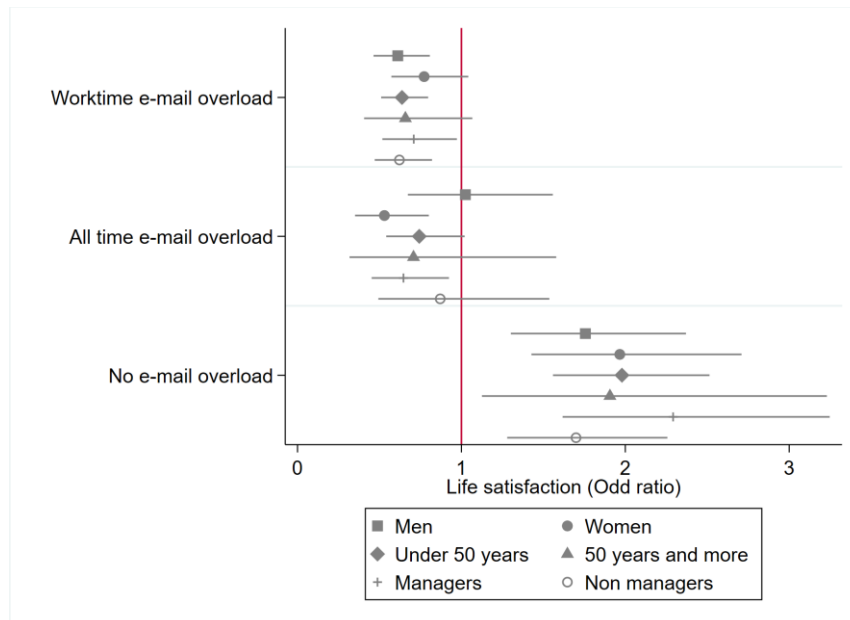


Figure 6. Employees’ life satisfaction—sociodemographic main results on e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a square represents the odds ratio for men. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

In terms of coping mechanisms (see Figure 7), our findings indicate that while the alertness strategy was found to reduce life satisfaction regardless of e-mail overload profile, in sub-groups, only men, those under 50 years old, and managers expressed concern. For the response speed expectations strategy that was beneficial for those belonging to the Worktime or No e-mail overload sub-groups (Table 7), Figure 7 highlights no differences between sub-groups.

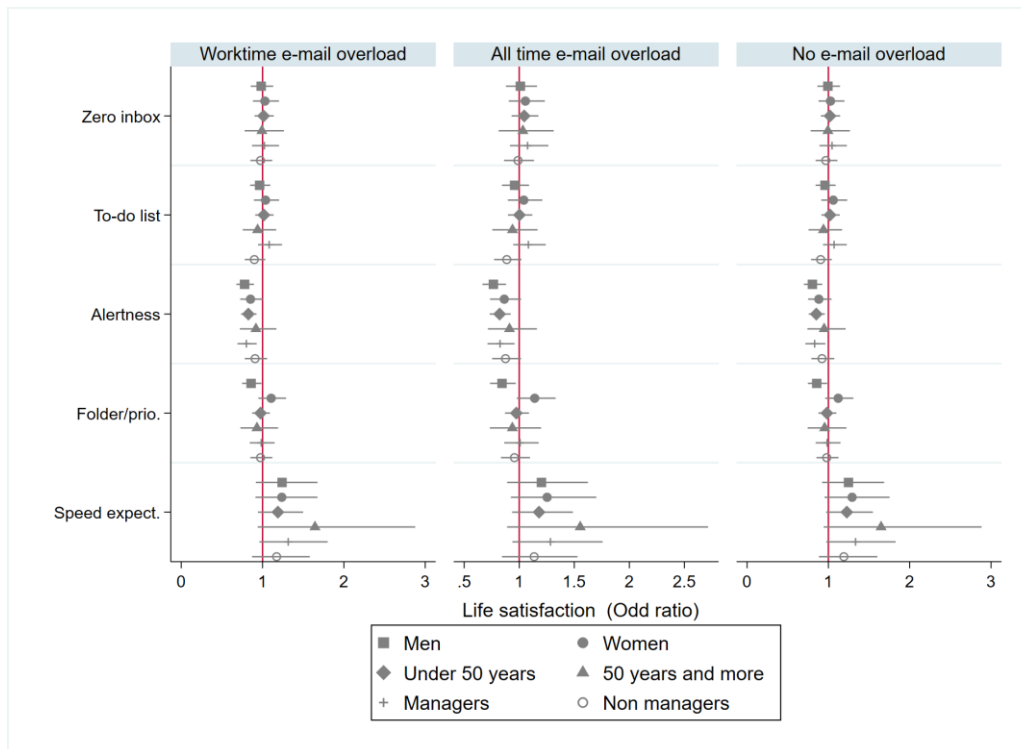


Figure 7. Employees' life satisfaction—sociodemographic main results on coping mechanisms by e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a square represents the odds ratio for men. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

4.3.4 In-depth analyses on managers and non-managers

Working long hours and presenteeism were shown to be an entire “part of the job” of managers (Ang et al., 2015). They also are required to be constantly available to carry out their work duties, thus infringing on their private time (Parris et al., 2008). Given the observation that managers frequently differ from non-managers in the sub-group analyses above, and that their other characteristics may be relevant, Figures 8–10 provide an in-depth analysis of the differences between managers and non-managers. Moreover, there is currently a lack of available significant evidence such as Martin et al. (2022) observing that for managers, the digital tools usage outside working hours is not significantly linked with their job stress, life satisfaction, and intensity of health problems.

With regard to job stress (see Figure 8), we observe that having one or more children reinforces the job stress of managers, irrespective of their e-mail overload profile.

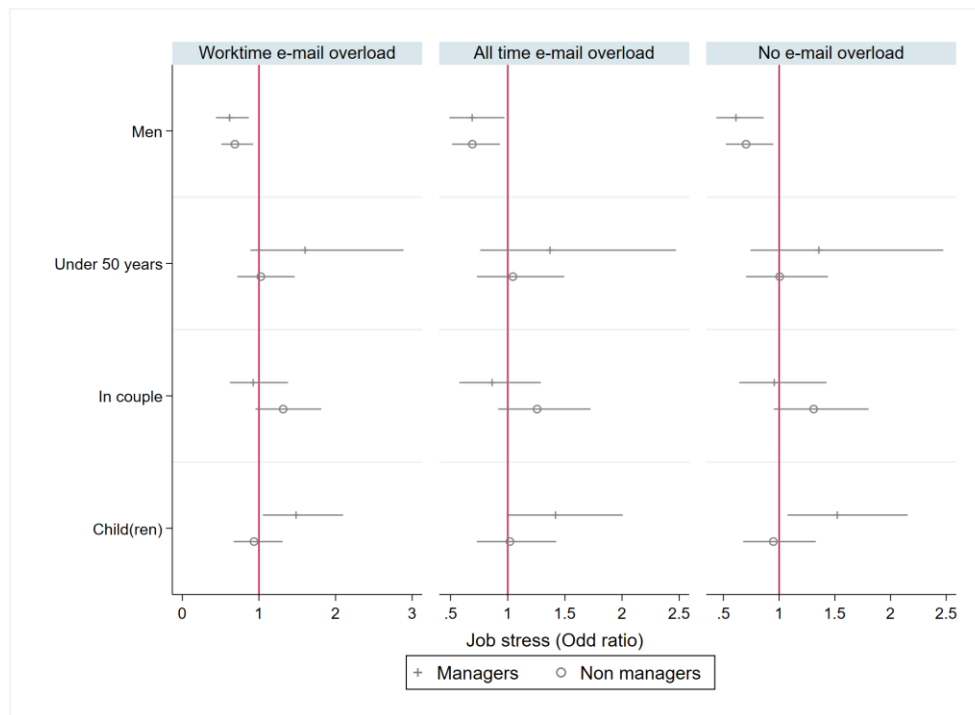


Figure 8. Employees' job stress—detailed results on managers versus non-managers by e-mail overload groups. *Source:* Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a cross represents the odds ratio for managers. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

In terms of job satisfaction (see Figure 9), we observe that having one or more children has a positive impact on the job satisfaction levels of both managers and non-managers, regardless of their e-mail overload profile. Manager under 50 years old are nevertheless less satisfied than non-managers.

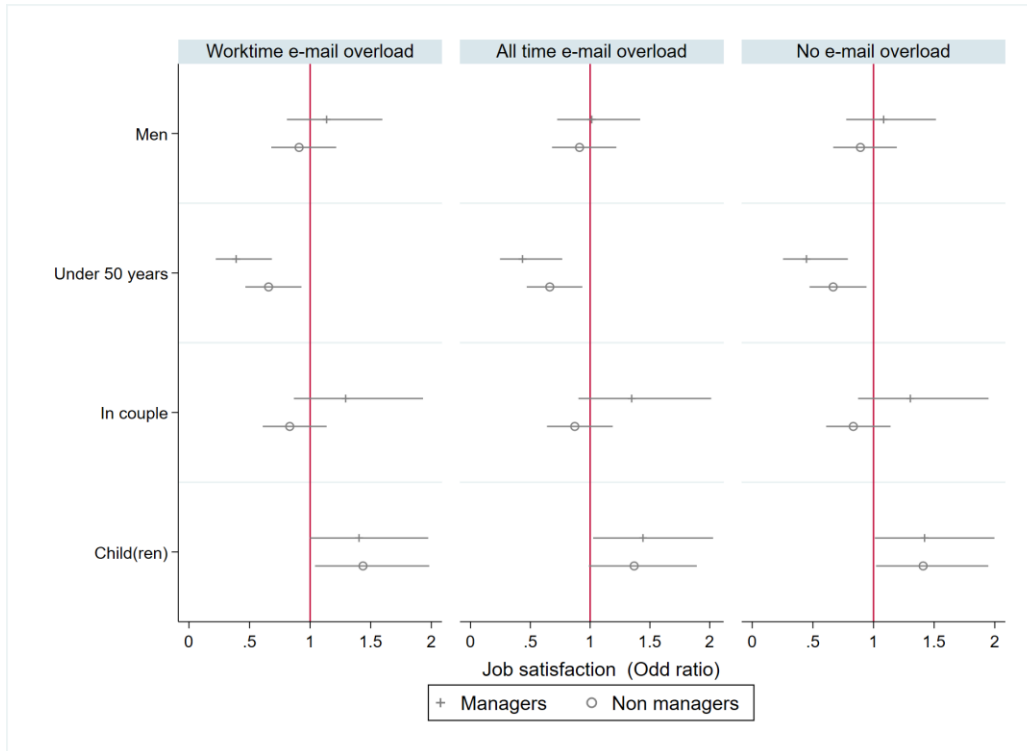


Figure 9. Employees' job satisfaction—detailed results on managers versus non-managers by e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a cross represents the odds ratio for managers. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

With regard to life satisfaction (see Figure 10), our findings indicate a comparable, more pronounced negative impact on managers below the age of 50, in comparison with non-managers. Our results indicate that being in a couple has a positive impact on the life satisfaction of non-managers, but not managers.

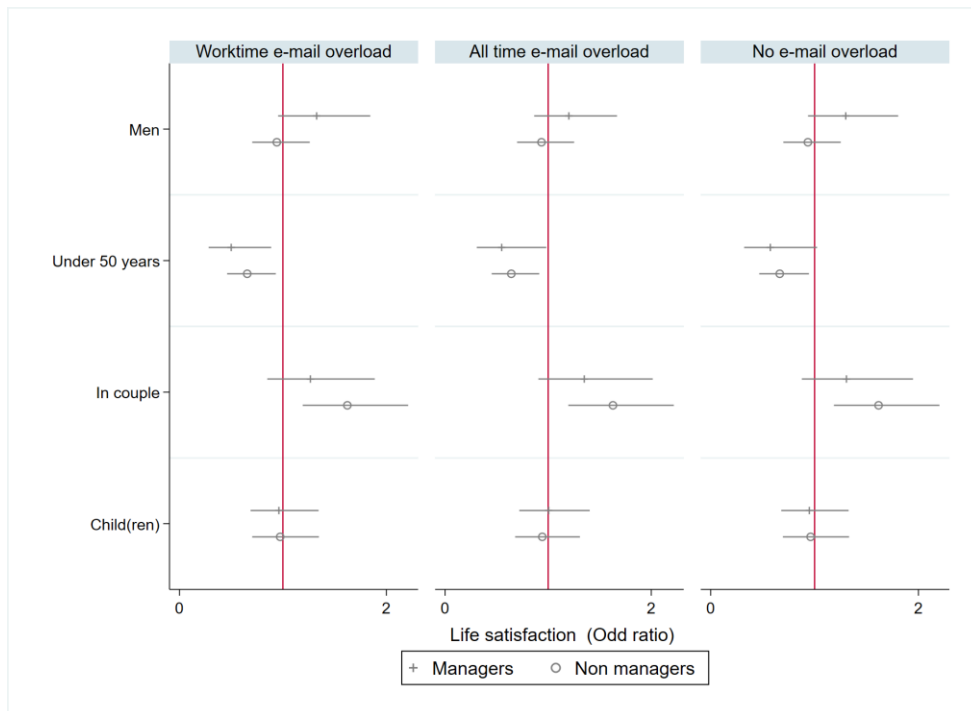


Figure 10. Employees' life satisfaction—detailed results on managers versus non-managers by e-mail overload groups.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Notes: The value of the odds ratio associated with a specific sociodemographic group is indicated by a symbol; for instance, a cross represents the odds ratio for managers. The line represents the 95% confidence interval for each odds ratio. Weighted estimates.

4.4 Robustness check

We first split all the 19 variables capturing employees' e-mail misuse and the work context of the e-mail use into binary variables, instead of using ordered variables, before running the clustering analysis. All new binary variables equal 1 when the frequency is greater than or equal to the average frequency observed in the studied population. The clustering analysis also creates three e-mail overload groups that group employees with similar e-mail usage behavior. The results concerning the relationships between e-mail overload groups and subjective well-being remain similar.

Second, we ran binary logit models instead of ordered logit models. We evaluated the mean of each outcome variable and constructed three binary variables according to the value of the

mean in the studied population. The results regarding the relationships between e-mail overload groups and binary subjective well-being are similar to the results shown in Tables 5, 6, and 7.

5 Discussion and Implications

5.1 Discussion

As the intensification in e-mail use we observed in 2019 increased during the lockdown(s) induced by the COVID-19 pandemic (DeFilippis et al., 2020; Kudyba, 2020)¹⁰ and is expected to persist post-pandemic (Rigotti et al., 2021), it is crucial to understand the consequences of e-mail overload for employees' subjective well-being. The present study contributes to this understanding.

Based on a sample of 1,372 employees working in Luxembourg, our study confirms two mechanisms through which e-mail overload affect employees' subjective well-being. The first mechanism is positive. For example, employees who deal with a manageable volume of professional e-mails during worktime and do not face e-mail overload have beneficial well-being outcomes. The second mechanism is negative. Employees who deal with e-mail overload during worktime and leisure time have detrimental outcomes in terms of stress and job and life satisfaction. These two mechanisms offer a greater understanding of perceived e-mail overload and its effects on subjective well-being.

Our main results show that (1) e-mail overload during worktime is negatively related to job and life satisfaction and positively related to job stress; (2) e-mail overload during both

¹⁰ The lockdown(s) induced by the COVID-19 pandemic that occurred in 2020 cause(d) a shift to working from home (Barrero et al., 2021), a significant digital transformation in the workplace (Kudyba, 2020), and an increase in the use of e-mail (DeFilippis et al., 2020).

worktime and leisure time is negatively related to life satisfaction and positively related to job stress; (3) having no e-mail overload is negatively related to job stress and positively related to job and life satisfaction.

In particular, with regard to job stress, our results echo research that emphasizes that the risks relating to e-mail overload are psychological and emotional in nature (Barley et al., 2011). For some individuals, specific e-mail misuse contributes to the development of stress factors linked to the feeling of urgency and of pressure (Jerejian et al., 2013; Lanctot & Duxbury, 2021). When employees suffer from e-mail overload, they feel that they are not able to cope with the flood of e-mails that falls on them to deal with. They then enter a phase of stress or emotional exhaustion, linked to a dual feeling of inefficiency and guilt (Brown et al., 2014; Reinke & Chamorro-Premuzic, 2014). It also induces some extreme consequences of suffering job stress such as emotional exhaustion (Brown et al., 2014), sleeping disorders (Brown et al., 2014; Fitz et al., 2019; Kushlev & Dunn, 2015), and burnout (Ter Hoeven et al., 2016). E-mail is indeed the very symbol of workplace stress, a scapegoat to be blamed for all workplace stress, because the inbox serves as a constant reminder of how much work remains to be done (McMurtry, 2014).

In regard to job satisfaction, our findings corroborate those of prior research indicating that, for instance, e-mail addiction reduces employees' efficiency (Marulanda-Carter & Jackson, 2012; Pirkkalainen & Salo, 2016). Marulanda-Carter & Jackson (2012) show indeed that five-minute e-mail interruptions cause a task to take one-third longer than completing a task without e-mail interruptions. The intrusive use of e-mails has also been shown to induce interruption and impair the pursuit of focused work (Karlsen and Ytre-Arne, 2022), which can be detrimental to job satisfaction. E-mail overload is said to be at the root of the deterioration of relationships between co-workers and may cause a loss of job satisfaction due to the decrease

in face-to-face meetings and the lack of time available for time off for informal interactions, particularly around the coffee machine (Waber et al., 2010).

In terms of life satisfaction, our findings are in alignment with the existing work showing that e-mail enables work to be carried out from anywhere at any time (Eurofound & ILO, 2017; Lal & Dwivedi, 2010), thereby blurring the border between work and family (Chesley, 2005) and generating work–family conflict (e.g., Schieman and Young, 2013).

In addition, we provide results on how employees from different sociodemographic groups are affected in their subjective well-being, based on the forms of e-mail overload they face. While the elimination of e-mail overload would undoubtedly benefit all employees, we identified certain vulnerable groups that are particularly affected. Women who belong to the group suffering from All time e-mail overload exhibit higher job stress levels and lower life satisfaction levels than their men counterparts. Senior employees who belong to the group suffering from Worktime time e-mail overload display higher job stress levels and lower job satisfaction levels than their younger counterparts. Although long working hours and presenteeism are considered integral aspects of the role of managers (Ang et al., 2015), younger managers (below the age of 50) have been found to experience a reduction in job and life satisfaction. Furthermore, managers report elevated stress levels compared with non-managers when they have at least one child. This is despite the fact that having at least one child is associated with enhanced job satisfaction for both managers and non-managers.

In regard to coping mechanisms that can mitigate the adverse effects of e-mail overload, our findings substantiate the efficacy of explicitly defining response time expectations, as previously proposed by Giurge & Bohns (2021) to mitigate e-mail urgency bias. This coping mechanism is shown to enhance job satisfaction across all employees, irrespective of the nature of their e-mail overload, and to improve life satisfaction among those experiencing worktime

e-mail overload or no overload. In contrast, the to-do list (keeping e-mails in the inbox as reminder of things to do) increases job stress for those suffering from one of the two forms of e-mail overload. In addition, the worst strategy is the “alertness” one (keeping the e-mail client permanently open), as it exacerbates the job stress of those facing Worktime e-mail overload while simultaneously reducing the job and life satisfaction of all employees regardless of the e-mail overload they face. This is in line with research showing that checking e-mail less frequently reduces stress (Kushlev & Dunn, 2015).

5.2 Implications for Research

Our study contributes to existing research on e-mail overload in several ways.

First, we mobilized a boundary perspective to conceptualize the understanding of employees’ experience of using e-mail during both working and leisure time. The coping perspective is employed to conceptualize the potential detrimental consequences of e-mail overload and to identify coping mechanisms to overcome them.

In this way, our approach goes beyond those of authors who distinguish several sources of digital overload—digital sources of information, communication, and stimulation (Misra et al., 2020)—or focus only on specific use or misuse of e-mail, rather than e-mail overload. Additionally, building on the work of Yu et al. (2023), we propose to enrich their concept of congruence. The authors distinguish between the perception of overload based on the content of the information (mainly professional or not). We propose to add a congruence based on the sphere (professional or not) and more specifically based on the location and the time or moment (professional location versus home; professional time versus off hours; professional moment versus leisure). By doing so, our research further illustrates the importance of studying

boundary management at the sphere level (work versus leisure) in order to mitigate misuse of e-mail and to turn its benefits—asynchrony and flexibility—into techno-distress.

Second, we present a novel approach to the classification of e-mail overload in relation to employees' experience of using e-mail. In contrast to existing studies that focus on specific technologies (e.g., mobile technology), or specific e-mail use or misuse (e.g., volume, time dedicated to e-mail), our study emphasizes the relevance of e-mail overload in the context of work or leisure time. Furthermore, we investigated the mediating role of various coping mechanisms identified in the literature as a means of overcoming the detrimental consequences associated with e-mail overload.

Third, we contribute to the literature on e-mail overload by examining the relationships between perceived e-mail overload and three subjective well-being measures of job stress, job satisfaction, and life satisfaction, rather than just a few work outcomes. Furthermore, our analysis considers not only the overall mean effect across the entire sample, but also the heterogeneity between various sociodemographic groups (gender, age, management responsibilities).

Fourth, we present empirical evidence for Luxembourg, which provides a relevant context for the study given the notable proportion of local firms that provide mobile devices to facilitate their staff's ability to remain connected with their organization when outside the office. Eurostat¹¹ data indicate a growing trend among enterprises to provide mobile devices (including mobile phones, tablets, and laptops) to their staff. In 2019, 68% of firms in the

¹¹ <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20200115-1>.

European Union with at least 10 employees provided their staff with mobile devices with Internet access. In Luxembourg, this figure stands at 73%.

5.3 Implications for Practice

Our findings have several implications for practice. First, employees, organizations, policy makers, and technology designers should acknowledge the dual aspect of e-mail overload in terms of both work and leisure time. To avoid this phenomenon, it is necessary for them to either take or provide corresponding actions.

First, digital skills should become a necessary personal resource for dealing with e-mail overload, and the ability to disconnect can be considered a digital skill in itself (Nguyen et al., 2022). As e-mail management strategies are context-dependent, our study implicitly offers some support for suggestions to have some coping mechanisms that influence e-mail management performance positively, especially the explicitly noted response speed expectations.

Second, our empirical evidence suggests that senior management should consider addressing e-mail overload, as a large proportion of employees are facing this problem (60% in the studied population). Since e-mail overload is detrimental to well-being and happier employees are shown to be more creative and productive (Mark et al., 2015; 2016) and to sustain companies' performance (Wood et al., 2012), low well-being of employees will be detrimental to companies. Organizations can use our insights to improve workplace well-being programs. Managers should, at least, respect existing laws and regulations. Nevertheless, if no regulations are available, they should seek to take a proactive approach and go beyond the legal framework to put in place rules for sending and handling e-mail in order to mitigate e-mail overload. Managers should spread good practices of e-mail management to limit the risks of e-mail

overload. They should indeed develop an information systems ethic by focusing on e-mail monitoring in the workplace (Kiser et al., 2011) and combat information “pollution” (Cai & Zhang, 1996). E-mail batching should be integrated into the culture and core practices of an organization (Wijngaards et al., 2022), specifically for employees facing higher volumes. They should invite their staff to undergo training on existing inbox features to better manage incoming and outgoing e-mails, as well as semi-automatic deletion of e-mails considered unnecessary (e.g., e-mails from suspicious sources). They should consider e-mail management methods, such as the Eisenhower matrix (Bratterud et al., 2020) that organizes e-mails according to their degree of importance and of urgency and makes it possible to deal better with e-mails to be treated, planned, transferred, delegated, or deleted. Another solution may be to test alternative communication options, such as instant messaging, web conferences, telephone calls, or face to -face, depending on the nature of the work and the colleagues involved.

It will be easier for managers to implement good practices regarding the use of e-mail during worktime, but they can also set a good example by not soliciting their subordinates during their leisure time and encouraging all to do likewise. Some organizations make it advisable or even compulsory to write “You do not have to reply to this message outside of office hours.”

Third, policy makers should introduce public policies that can also play a role in reducing e-mail overload, especially during leisure time. For instance, providing a right to disconnect after regular working hours (as in France) will help employees to limit the external pressure of the flow of information, communication, and work during leisure time. More generally, with more studies such as the present one, an increasing number of governments will become aware of the risks of e-mail overload. This will in turn lead to the formulation of more robust policies aimed at preventing it.

Additionally, our results bring the opportunity for technology designers to enrich e-mail management tools that help employees manage e-mail overload according to their multidimensional contexts. For example, designers should offer the possibility for employees to enter parameters such as the maximum number of e-mails received during a specific time interval.

5.4 *Limitations and Future Research*

Our results have some limitations that need to be considered. Our analyses rely on cross-sectional data. Therefore, our results highlight relationships between employee e-mail overload and subjective well-being. In a more confirmatory approach, panel data and structural equation modeling would be relevant to assess a causal model globally. Indeed, longitudinal studies that track the long-term effects of e-mail overload on employees would provide valuable insights into the phenomenon in dynamics and identify further evidence-based policies.

While existing research on e-mail overload focuses primarily on certain e-mail use and misuse, especially receiving too much information via e-mail, future research should also consider the fact that employees could receive too little, or poor-quality information. In this case, the users find themselves in a situation of deficiency. This can result in repetitive and sometimes unconscious behavior, such as continuous, addictive checking of e-mail notifications. This constitutes another avenue for future research.

Technostress embodies “good stress” and encompasses challenge stressors and positive consequences, whereas techno-distress embodies “bad stress” and encompasses hindrance stressors and negative consequences (e.g., Ragu-Nathan et al., 2008; Stich et al., 2019; Tarafdar et al., 2023). For example, some researchers conclude that technology overload has a positive

effect on productivity (Yu et al., 2023). Thus, further research is necessary to investigate stress outcomes by nuancing good and bad stress.

The COVID-19 lockdowns have led to a boom in working from home, highlighting the growing reliance on digital collaboration and communication tools by workers. While e-mail use has remained high and constant, instant messaging via Microsoft Teams has increased (Yang et al., 2022). Hauret et al. (2024) also note that the use of other digital collaboration and communication tools has increased, especially process automation tools (workflow), document-sharing platforms (groupware), and web conferencing during the COVID-19 lockdown(s). Furthermore, these different tools can easily complement each other. Focusing specifically on e-mail and instant messaging, it has been shown that they serve distinct purposes (Iskandar et al., 2017). E-mail is an asynchronous form of communication that allows employees more time to organize their thoughts before sending, while instant messaging is a near-synchronous form of communication that facilitates quick information access and knowledge sharing, similarly to face-to-face communication. Investigating how the growing number of digital collaboration and communication tools used by workers, and exploring how these tools can be associated to enhance employees' well-being, offers another area for future research.

It is pertinent to question the extent to which the findings from this study can be generalized to other contexts. It can be argued that the use of e-mail for work purposes is a universal phenomenon, irrespective of the national context. Nevertheless, it should be noted that the

adoption of digital collaboration and communication tools may vary between developed and developing countries due to significant differences in their digital infrastructure.¹²

However, an interesting avenue for future research is the need for comparative studies to understand the impact of cultural, societal, and institutional factors on e-mail overload perceptions and strategies.

To conclude, insights gained from this research are timely, considering the recent resort to hybrid work (Bloom et al., 2022), increasing the use of digital collaboration and communication tools. Understanding the link between employee well-being and e-mail (mis)use has never been more important. Since technology has facilitated the emergence of boundaryless organizations with the possibility to connect to one's work anywhere and anytime, it is important to understand complex work/non-work interactions and how maintaining boundaries may be necessary for well-being. Finally, our study provides some suggestions on how disciplined employees and organizations can mitigate the negative impact of e-mail overload on employees' well-being.

¹² See for details <https://unctad.org/news/unctad-data-highlights-need-strengthen-business-ict-statistics>.

Appendix A

Questions related to employees' subjective well-being

Job stress – How often... Do you feel stress at work? 1: Never, 2: Less than a month, 3: At least once a month, 4: Once a week, 5: More than once a week, 6: Everyday

Job satisfaction – On a scale of 1 to 10, where do you rank the level of satisfaction you get from your job? 0: Completely unsatisfied to 10: Completely satisfied → recode of 0 with 1; 2 and 3 with 4, to generate a scale from 1 to 8

Life satisfaction – On a scale of 0 to 10, where do you rank the level of satisfaction regarding the life you are living at the moment? 0: Completely unsatisfied to 10: Completely satisfied → recode of 0 with 1; 2 and 3 with 4, to generate a scale from 1 to 8

Questions related to employees' experience of using e-mail covering e-mail misuse in the work and leisure environments and work context around the e-mail use (Cronbach's α of all 19 measures together = 0.829)

nb_e-mail – On average, how many e-mails do you receive over a 24-hour period including a working day? __ e-mails → recoded: 1: 0/15 e-mails, 2: 16/49, 3: 50/70, 4: 71/100, 5: 101 and more

minute_e-mail – On average, how much time do you spend processing e-mails on a daily basis? ___ hour(s) ___ minutes → recoded: 1: 0 to 60 minutes, 2: 60 to 120 minutes, 3: 121 to 180 minutes, 4: 181 to 240 minutes, 5: 241 minutes and more

useless_e-mail – How often do you receive e-mails that you consider unnecessary or not relevant (excluding SPAM)? 0: Never, 1: Less than once a month, 2: At least once a month, 3: Once a week, 4: More than once a week, 5: Everyday → recoded: 0 with 1

forced_answer_work – During your usual working hours, when you receive an e-mail, do you feel...? 1: Forced to answer to 5: Free to answer → Reversed

guilty_not_answer_work – During your usual working hours, when you receive an e-mail, do you feel...? 1: Guilty of not answering to 5: Serene about not answering → Reversed

forced_answer_leisure – Outside your usual working hours, when you receive an e-mail, do you feel...? 1: Forced to answer to 5: Free to answer → Reversed

guilty_not_answer_leisure – Outside your usual working hours, when you receive an e-mail, do you feel...? 1: Guilty of not answering to 5: Serene about not answering → Reversed

How often do you receive solicitations by e-mail requiring an immediate response from?

immediate_reply_superior_work – My superior - During my working hours

immediate_reply_superior_leisure – My superior - Outside my working hours

immediate_reply_col_work – My colleagues - During my working hours

immediate_reply_col_leisure – My colleagues - Outside my working hours

immediate_reply_staff_work – The staff I manage - During my working hours

immediate_reply_staff_leisure – The staff I manage - Outside my working hours

immediate_reply_customer_work – Clients, users, patients, etc. - During my working hours

immediate_reply_customer_leisure – Clients, users, patients, etc. - Outside my working hours

0: Never or not applicable, 1: Less than a month, 2: At least once a month, 3: Once a week, 4: More than once a week, 5: Everyday → recoded: 0 with 1

diff_manage_e-mail – Do you recognise yourself in any of the following statements about your work e-mail management habits? Yes/No

- I'm having trouble finding information in my e-mails
- I miss important information or messages at least once a month
- I receive e-mails that I don't have time to deal with

→ recoded: sum of difficulties from 0 to 3

too_much_info – Indicate your degree of agreement or disagreement with the following statements: I receive too much information in one working day. 1: Strongly disagree, 2: Disagree, 3: Neither agree nor disagree, 4: Agree, 5: Strongly agree

unforeseen_demands – Is your working rhythm set by...? Yes/No

- Unforeseen requests to be processed quickly
- Deadlines related to projects and documents processed
- Work volume determined by the hierarchy (number of elements/documents to be produced, files to be processed, etc.)
- Dependence on the work of one or more colleagues

→ Sum of unforeseen demands from 0 to 4

no_interruption – During the last working week, how long was the maximum amount of time you could work without being interrupted (by a notification, a call, a person)? ___hour(s) ___ minutes → recoded: 1: 0 to 10 minutes; 2: 11 to 20 minutes, 3: 21 to 59 minutes, 4: 60 to 120 minutes; 5: 121 minutes and more

Questions related to employees' coping mechanisms

Do you recognise yourself in any of the following statements about your work e-mail management habits? Yes/no

Zero inbox strategy - correlations between items: a-b: 0.0769*, a-c: 0.0464*, b-c: 0.1133*****

- a) I delete my messages after dealing with them
- b) When absent, my e-mails are automatically deleted
- c) When absent, my e-mails are automatically forwarded to one of my colleagues

To-do list strategy - correlations between items: a-b: 0.0746***

- a) I keep messages in my inbox to remind me of things I have to do
- b) I manually file my messages in separate working folders

Alertness strategy - correlations between items: a-b: 0.1173*, a-c: 0.1124***, b-c: 0.2593*****

- a) I check my mailbox as soon as I see or hear that a new message has arrived

- b) I check at what time an e-mail was sent to me
- c) Usually, when I send an e-mail, I expect a reply from my recipient within the same day

Folder organization and prioritization strategy - correlations between items: a-b: 0.1175*, a-c: 0.1183***, b-c: ns**

- a) I have set up the automatic sorting of incoming e-mails (e-mail ordered by sender, by subject, etc.)
- b) E-mails for which I am CCed arrive the same way into my mailbox as e-mails for which I am the recipient
- c) I use the delayed sending setting of an e-mail as soon as necessary

Response speed expectations

- a) When I send an e-mail, I specify if I expect a reply and if so the deadline by which I need it

Note: correlations * significant at 10%; ** significant at 5%; *** significant at 1%; ns not significant.

Appendix B

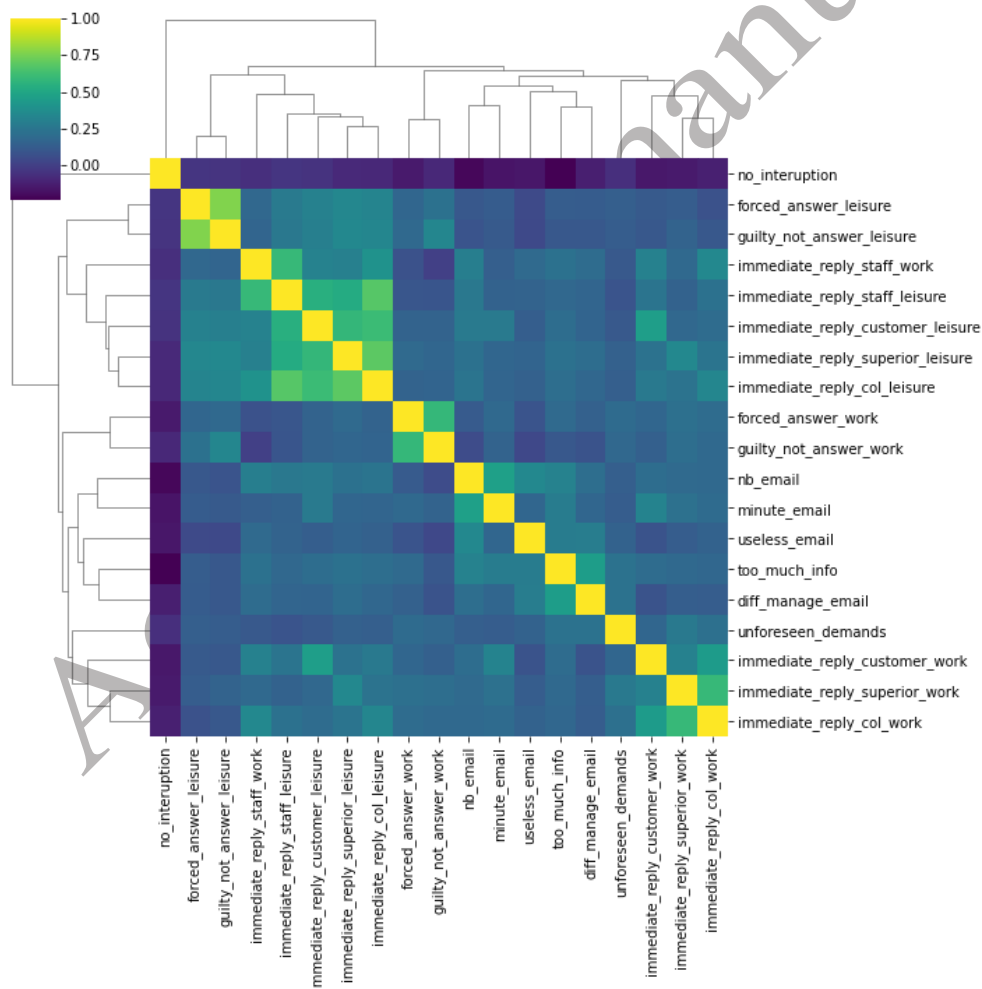


Figure B1. Correlation matrix and dendrogram.
 Source: Survey from the “Info Flow Savvy project—ESF,” 2019.

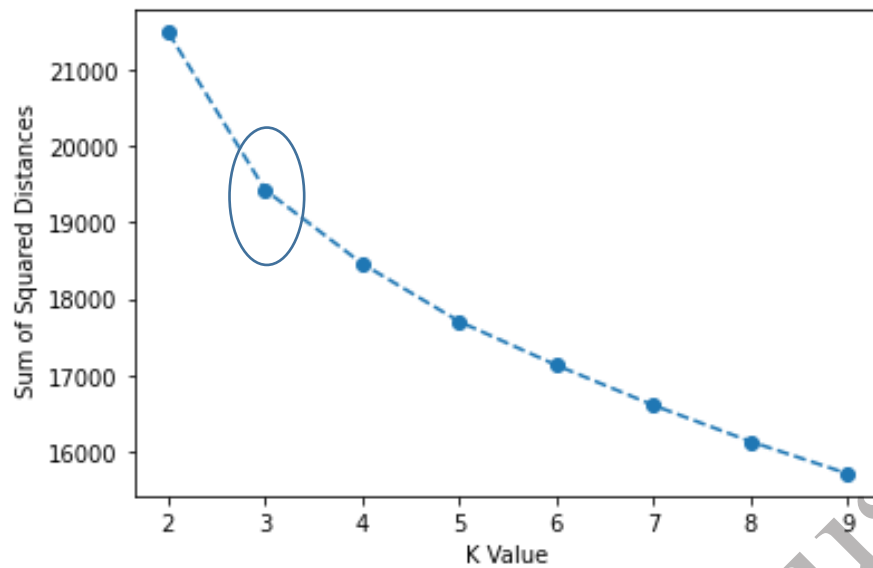


Figure B2. Sum of squared distance.

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Table B1. E-mail overload groups—Descriptive statistics of variables introduced in the I-means clustering analysis

Variable	Whole sample	Clusters		
		Worktime e-mail overload	All time e-mail overload	No e-mail overload
nb_email	2.56	2.72	3.3	2.01
minute_email	2.75	2.93	3.43	2.2
useless_email	3.90	4.16	4.38	3.37
forced_answer_work	3.43	3.7	4.04	2.83
guilty_not_answer_work	3.44	3.67	3.93	2.95
forced_answer_leisure	2.09	1.93	3.16	1.74
guilty_not_answer_leisure	2.13	1.99	3.2	1.76
immediate_reply_superior_work	3.45	4	4.21	2.47
immediate_reply_superior_leisure	1.57	1.27	3.21	1.1
immediate_reply_col_work	3.66	4.26	4.52	2.55
immediate_reply_col_leisure	1.65	1.3	3.52	1.11
immediate_reply_staff_work	2.23	2.26	3.86	1.39
immediate_reply_staff_leisure	1.43	1.1	2.97	1.05
immediate_reply_customer_work	3.02	3.52	4.11	1.94
immediate_reply_customer_leisure	1.58	1.25	3.27	1.13
diff_manage_email	1.07	1.28	1.47	0.62
too_much_info	3.40	3.72	3.85	2.82
unforeseen_demands	2.89	3.18	3.15	2.44

no_interruption	3.64	3.37	3.42	4.06
Nb of observations (%)	1372 (100%)	593 (43.22%)	256 (18.66%)	523 (38.12%)

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019.

Appendix C

Table C1. Descriptive statistics of control variables introduced in the ordered logit models

	Definition of the variable (binary, 1 = yes / 0 = no)	Mean
Individual characteristics		
Men	Being male	0.534
Age below 30 (Ref.)	Being under 30 years old	0.212
Age 30–49	Being between 30 and 46 years old	0.598
Age above 50	Being 50 years old or more	0.190
Luxembourgish (Ref.)	Being of Luxembourgish nationality	0.326
German	Being of German nationality	0.078
Belgian	Being of Belgian nationality	0.125
French	Being of French nationality	0.335
Portuguese	Being of Portuguese nationality	0.031
Other EU-28	Being of another European Union (EU-28) nationality	0.075
Outside EU-28	Being of another nationality	0.031
Couple	Living with a partner	0.730
Child(ren)	Having (a) child(ren)	0.508
Primary–secondary education (Ref.)	Having a primary or secondary level of education	0.188
Tertiary education	Having a high level of education up to a bachelor-level degree	0.307
Master or above	Having a high level of education such as a master’s or a PhD	0.504
Car driver (Ref.)	Being a single passenger in a car to commute to work	0.593
Carpooling	Using carpooling to commute to work	0.063
Train	Using the train to commute to work	0.137
Bus/tram	Using the bus or tram to commute to work	0.150
Bicycle or walking	Using a bicycle or scooter or walking to commute to work	0.057
0–10 minutes	Taking less than 10 minutes to commute to work (one-way only)	0.050
11–20 minutes	Taking between 11 and 20 minutes to commute to work (one-way only)	0.166
21–30 minutes	Taking between 21 and 30 minutes to commute to work (one-way only)	0.125
31–59 minutes	Taking between 31 and 59 minutes to commute to work (one-way only)	0.268
60–90 minutes	Taking between 60 and 90 minutes to commute to work (one-way only)	0.313

	Definition of the variable (binary, 1 = yes / 0 = no)	Mean
90+ minutes (Ref.)	Taking more than 90 minutes to commute to work (one-way only)	0.077
Job characteristics		
Senior executive (Ref.)	CEO, senior executive, managing director	0.224
Intellectual	Intellectual and scientific profession	0.272
Intermediate	Intermediate occupation	0.116
Administrative	Administrative employee, retail, seller	0.349
Craft	Industry and craft workers	0.038
Full time	Having a full-time job	0.823
Supervision	Supervising employees	0.441
External contacts	Being in direct contact with people outside the firm	0.810
Workplace characteristics		
Manufacturing (Ref.)	Working for a manufacturing firm; transportation and storage sectors (NACE C-H)	0.079
Trade	Working for a firm in wholesale and retail trade; repairing motor vehicles and motorcycles; Accommodation and food service sectors (NACE G-I)	0.044
ICT	Working for a firm from the information and communication sector (NACE J)	0.086
Finance	Working for a firm from the financial services and insurance sector (NACE K)	0.441
Support services	Working for a firm providing professional, scientific and technical services or activities; Administrative and support service activities, Real estate activities sectors (NACE M, N, L)	0.220
Public sector	Working for a firm from Public administration and defense; compulsory social security (NACE O)	0.025
Other sectors	Working for a firm from other sectors (NACE P-Q-R-S)	0.105
<50 employees (Ref.)	Working for a small firm (less than 50 employees)	0.041
50–249 employees	Working for a medium-sized firm (from 50 to 249 employees)	0.105
250+ employees	Working for a large firm (250 or more employees)	0.854
Number of observations		1372

Source: Survey from the “Info Flow Savvy Project—ESF,” 2019. (Ref.) for variables used as reference in the analyses. Weighted statistics.

Table C2. E-mail overload groups and employees' job stress: Full results of Table 5

	Job stress					
	Model 1.1	Model 1.2	Model 2.1	Model 2.2	Model 3.1	Model 3.2
E-mail overload groups						
Worktime e-mail overload	2.060*** (0.213)	2.028*** (0.211)	—	—	—	—
All time e-mail overload	—	—	2.545*** (0.371)	2.493*** (0.369)	—	—
No e-mail overload	—	—	—	—	0.247*** (0.0281)	0.250*** (0.0288)
Coping mechanism						
Zero inbox	—	0.993 (0.0519)	—	0.946 (0.0492)	—	1.000 (0.0527)
To-do list	—	1.105** (0.0544)	—	1.116** (0.0550)	—	1.084 (0.0539)
Alertness	—	1.098* (0.0565)	—	1.055 (0.0550)	—	1.010 (0.0527)
Folder/prioritization	—	1.065 (0.0541)	—	1.062 (0.0541)	—	1.037 (0.0529)
Response speed expectations	—	0.953 (0.0483)	—	0.948 (0.0480)	—	0.932 (0.0475)
Individual characteristics						
Men	0.688*** (0.0753)	0.684*** (0.0754)	0.738*** (0.0807)	0.733*** (0.0808)	0.717*** (0.0786)	0.708*** (0.0781)
Age 30-49	1.147 (0.170)	1.142 (0.171)	1.101 (0.163)	1.072 (0.161)	1.077 (0.160)	1.053 (0.158)
Age above 50	1.208 (0.217)	1.257 (0.230)	1.287 (0.231)	1.307 (0.239)	1.172 (0.210)	1.155 (0.212)
German	1.179 (0.237)	1.190 (0.240)	1.171 (0.238)	1.172 (0.238)	1.066 (0.218)	1.072 (0.220)
Belgian	1.225 (0.220)	1.224 (0.221)	1.154 (0.207)	1.151 (0.208)	1.133 (0.204)	1.145 (0.208)
French	1.105 (0.163)	1.086 (0.161)	1.005 (0.148)	0.994 (0.147)	1.042 (0.154)	1.037 (0.154)
Portuguese	0.698 (0.215)	0.653 (0.203)	0.781 (0.240)	0.749 (0.233)	0.570* (0.178)	0.552* (0.174)
Other EU-28	0.954 (0.206)	0.965 (0.210)	0.797 (0.172)	0.798 (0.174)	0.867 (0.184)	0.883 (0.190)
Outside EU-28	1.203 (0.379)	1.158 (0.367)	1.082 (0.335)	1.064 (0.331)	1.184 (0.378)	1.190 (0.381)
Couple	1.190 (0.148)	1.177 (0.146)	1.141 (0.142)	1.141 (0.142)	1.202 (0.149)	1.201 (0.150)
Child(ren)	1.158 (0.138)	1.169 (0.139)	1.135 (0.135)	1.143 (0.136)	1.140 (0.136)	1.144 (0.137)
Tertiary education	0.943 (0.147)	0.992 (0.155)	1.003 (0.157)	1.042 (0.164)	0.925 (0.145)	0.953 (0.151)
Master or above	0.931 (0.151)	0.974 (0.160)	0.898 (0.147)	0.924 (0.152)	0.906 (0.148)	0.930 (0.154)
Carpooling	0.934 (0.203)	0.928 (0.202)	0.976 (0.210)	0.951 (0.205)	0.992 (0.216)	0.976 (0.214)
Train	0.656*** (0.105)	0.673** (0.109)	0.735* (0.119)	0.755* (0.123)	0.701** (0.114)	0.716** (0.116)
Bus/tram	0.984 (0.152)	0.962 (0.149)	0.978 (0.150)	0.954 (0.147)	1.009 (0.156)	0.989 (0.154)
Bicycle or walking	0.653* (0.150)	0.656* (0.151)	0.687 (0.159)	0.679* (0.158)	0.620** (0.144)	0.618** (0.143)
0-10 minutes	0.633	0.630	0.639	0.645	0.651	0.656

	(0.191)	(0.191)	(0.191)	(0.193)	(0.196)	(0.198)
11-20 minutes	0.491*** (0.115)	0.504*** (0.118)	0.516*** (0.120)	0.532*** (0.124)	0.542*** (0.127)	0.547** (0.128)
21-30 minutes	0.502*** (0.119)	0.510*** (0.122)	0.529*** (0.126)	0.535*** (0.128)	0.523*** (0.124)	0.521*** (0.124)
31-59 minutes	0.566*** (0.121)	0.586** (0.125)	0.640** (0.137)	0.659* (0.141)	0.621** (0.133)	0.633** (0.136)
60-90 minutes	0.748 (0.153)	0.756 (0.154)	0.807 (0.165)	0.817 (0.167)	0.856 (0.175)	0.856 (0.176)
Job characteristics						
Intellectual	1.044 (0.160)	1.057 (0.162)	1.221 (0.188)	1.227 (0.189)	1.147 (0.176)	1.151 (0.177)
Intermediate	0.801 (0.154)	0.782 (0.152)	1.020 (0.194)	0.995 (0.191)	0.849 (0.162)	0.832 (0.160)
Administrative	0.920 (0.151)	0.876 (0.145)	1.187 (0.194)	1.133 (0.187)	1.000 (0.163)	0.963 (0.159)
Craft	1.355 (0.392)	1.283 (0.371)	1.568 (0.457)	1.500 (0.437)	1.741* (0.507)	1.701* (0.497)
Full time	1.517*** (0.216)	1.508*** (0.215)	1.594*** (0.228)	1.578*** (0.226)	1.417** (0.202)	1.405** (0.201)
Supervision	1.545*** (0.187)	1.609*** (0.197)	1.346** (0.165)	1.406*** (0.175)	1.244* (0.152)	1.277** (0.158)
External contacts	1.242* (0.163)	1.199 (0.160)	1.348** (0.175)	1.307** (0.172)	1.005 (0.135)	0.977 (0.132)
Workplace characteristics						
Trade	0.821 (0.254)	0.825 (0.257)	0.743 (0.231)	0.759 (0.237)	0.898 (0.279)	0.889 (0.277)
ICT	1.431 (0.353)	1.458 (0.361)	1.371 (0.339)	1.384 (0.344)	1.387 (0.346)	1.390 (0.348)
Finance	1.090 (0.223)	1.118 (0.230)	1.136 (0.234)	1.177 (0.244)	1.128 (0.233)	1.150 (0.239)
Support services	1.216 (0.267)	1.243 (0.276)	1.027 (0.228)	1.080 (0.242)	1.042 (0.231)	1.067 (0.239)
Public sector	0.855 (0.307)	0.893 (0.322)	0.759 (0.272)	0.817 (0.294)	0.854 (0.310)	0.877 (0.320)
Other sectors	1.172 (0.288)	1.233 (0.305)	1.031 (0.253)	1.097 (0.271)	1.248 (0.311)	1.308 (0.327)
50-249 employees	1.042 (0.296)	1.031 (0.295)	1.025 (0.293)	1.039 (0.298)	1.037 (0.297)	1.042 (0.300)
250+ employees	1.443 (0.356)	1.411 (0.350)	1.543* (0.385)	1.523* (0.381)	1.312 (0.327)	1.303 (0.326)
Cut 1	0.153*** (0.0711)	0.148*** (0.0694)	0.169*** (0.0791)	0.164*** (0.0774)	0.0409*** (0.0196)	0.0384*** (0.0186)
Cut 2	0.543 (0.248)	0.527 (0.243)	0.585 (0.270)	0.570 (0.265)	0.151*** (0.0708)	0.141*** (0.0674)
Cut 3	1.262 (0.577)	1.231 (0.567)	1.347 (0.621)	1.316 (0.611)	0.366** (0.171)	0.344** (0.163)
Cut 4	2.870** (1.316)	2.815** (1.301)	3.048** (1.409)	2.994** (1.394)	0.874 (0.409)	0.825 (0.391)
Cut 5	12.04*** (5.560)	11.88*** (5.535)	12.95*** (6.032)	12.79*** (6.002)	3.957*** (1.859)	3.748*** (1.780)
Observations	1,372	1,372	1,372	1,372	1,372	1,372
Iteration 0: log likelihood	-2323.715	-2323.715	-2323.715	-2323.715	-2323.715	-2323.715
Log likelihood	-2251.846	-2247.13	-2255.832	-2251.227	-2197.986	-2195.586
LR $\chi^2(43)$	143.74	153.17	135.77	144.97	251.46	256.26

Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0309	0.0330	0.0292	0.0312	0.0541	0.0551

Source: Survey from the “Info Flow Savvy Project–ESF,” 2019.

Notes: Odd ratios, standard errors in parentheses. Weighted estimations.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table C3. E-mail overload groups and employees’ job satisfaction: Full results of Table 6

	Job satisfaction					
	Model 1.1	Model 1.2	Model 2.1	Model 2.2	Model 3.1	Model 3.2
E-mail overload groups						
Worktime e-mail overload	0.532*** (0.0543)	0.532*** (0.0546)	—	—	—	—
All time e-mail overload	—	—	0.915 (0.131)	0.945 (0.137)	—	—
No e-mail overload	—	—	—	—	2.119*** (0.228)	2.103*** (0.230)
Coping mechanism						
Zero inbox	—	1.026 (0.0535)	—	1.051 (0.0546)	—	1.035 (0.0539)
To-do list	—	0.973 (0.0470)	—	0.957 (0.0459)	—	0.978 (0.0471)
Alertness	—	0.878** (0.0449)	—	0.872*** (0.0449)	—	0.909* (0.0468)
Folder/prioritization	—	0.965 (0.0487)	—	0.964 (0.0486)	—	0.980 (0.0494)
Response speed expectations	—	1.178*** (0.0595)	—	1.165*** (0.0588)	—	1.189*** (0.0599)
Individual characteristics						
Men	0.992 (0.107)	1.011 (0.110)	0.951 (0.103)	0.965 (0.105)	0.959 (0.103)	0.980 (0.106)
Age 30–49	0.560*** (0.0803)	0.545*** (0.0790)	0.584*** (0.0838)	0.573*** (0.0831)	0.584*** (0.0840)	0.576*** (0.0836)
Age above 50	0.735* (0.129)	0.687** (0.122)	0.717* (0.126)	0.670** (0.119)	0.739* (0.130)	0.706** (0.125)
German	0.870 (0.179)	0.851 (0.175)	0.836 (0.173)	0.820 (0.169)	0.913 (0.189)	0.894 (0.184)
Belgian	0.853 (0.148)	0.840 (0.147)	0.858 (0.149)	0.849 (0.148)	0.894 (0.155)	0.878 (0.153)
French	0.843 (0.121)	0.842 (0.122)	0.870 (0.125)	0.871 (0.126)	0.874 (0.126)	0.870 (0.126)
Portuguese	1.095 (0.335)	1.083 (0.337)	0.955 (0.295)	0.955 (0.300)	1.117 (0.340)	1.092 (0.338)
Other EU-28	0.772 (0.166)	0.708 (0.154)	0.837 (0.182)	0.770 (0.169)	0.828 (0.179)	0.756 (0.165)
Outside EU-28	0.760 (0.233)	0.802 (0.248)	0.773 (0.238)	0.819 (0.254)	0.756 (0.233)	0.784 (0.244)
Couple	1.011 (0.124)	1.021 (0.125)	1.047 (0.128)	1.057 (0.129)	1.013 (0.125)	1.019 (0.125)
Child(ren)	1.422*** (0.166)	1.409*** (0.164)	1.407*** (0.164)	1.392*** (0.163)	1.439*** (0.168)	1.426*** (0.166)
Tertiary education	0.940 (0.147)	0.905 (0.142)	0.896 (0.139)	0.860 (0.135)	0.944 (0.147)	0.922 (0.144)
Master or above	0.901 (0.147)	0.840 (0.139)	0.928 (0.152)	0.867 (0.144)	0.927 (0.151)	0.879 (0.145)
Carpooling	0.708* (0.145)	0.738 (0.152)	0.719 (0.146)	0.754 (0.153)	0.696* (0.142)	0.729 (0.150)

Train	0.962 (0.153)	0.933 (0.149)	0.939 (0.150)	0.910 (0.145)	0.905 (0.144)	0.879 (0.140)
Bus/tram	0.942 (0.147)	0.961 (0.150)	0.928 (0.145)	0.947 (0.148)	0.913 (0.142)	0.930 (0.145)
Bicycle or walking	1.284 (0.296)	1.276 (0.294)	1.259 (0.294)	1.252 (0.292)	1.314 (0.305)	1.309 (0.304)
0–10 minutes	1.626 (0.494)	1.646 (0.501)	1.698* (0.512)	1.720* (0.522)	1.636 (0.494)	1.636 (0.496)
11–20 minutes	2.504*** (0.578)	2.519*** (0.583)	2.518*** (0.583)	2.525*** (0.587)	2.454*** (0.563)	2.471*** (0.570)
21–30 minutes	1.630** (0.385)	1.587* (0.377)	1.588* (0.377)	1.549* (0.370)	1.586* (0.373)	1.555* (0.369)
31–59 minutes	2.206*** (0.468)	2.138*** (0.455)	2.068*** (0.440)	2.007*** (0.429)	2.061*** (0.434)	2.004*** (0.424)
60–90 minutes	1.440* (0.292)	1.401* (0.285)	1.391 (0.284)	1.357 (0.277)	1.362 (0.275)	1.325 (0.268)
Job characteristics						
Intellectual	0.474*** (0.0729)	0.471*** (0.0724)	0.451*** (0.0700)	0.451*** (0.0698)	0.433*** (0.0664)	0.432*** (0.0664)
Intermediate	0.525*** (0.0995)	0.559*** (0.107)	0.478*** (0.0903)	0.512*** (0.0973)	0.481*** (0.0910)	0.511*** (0.0970)
Administrative	0.647*** (0.103)	0.692** (0.111)	0.588*** (0.0945)	0.631*** (0.102)	0.587*** (0.0930)	0.624*** (0.0997)
Craft	0.454*** (0.134)	0.488** (0.143)	0.464*** (0.138)	0.503** (0.149)	0.401*** (0.119)	0.425*** (0.126)
Full time	0.760** (0.105)	0.763** (0.105)	0.730** (0.100)	0.734** (0.101)	0.775* (0.106)	0.776* (0.106)
Supervision	1.105 (0.132)	1.039 (0.125)	1.103 (0.134)	1.030 (0.126)	1.237* (0.150)	1.170 (0.143)
External contacts	1.336** (0.174)	1.360** (0.179)	1.177 (0.151)	1.194 (0.156)	1.416*** (0.185)	1.432*** (0.189)
Workplace characteristics						
Trade	1.625 (0.508)	1.663 (0.520)	1.740* (0.544)	1.760* (0.551)	1.570 (0.492)	1.606 (0.504)
ICT	1.105 (0.272)	1.115 (0.275)	1.091 (0.270)	1.095 (0.271)	1.152 (0.284)	1.161 (0.287)
Finance	1.038 (0.209)	1.018 (0.206)	1.004 (0.203)	0.980 (0.199)	1.022 (0.207)	1.000 (0.203)
Support services	1.188 (0.259)	1.177 (0.258)	1.196 (0.263)	1.169 (0.258)	1.316 (0.289)	1.288 (0.284)
Public sector	1.280 (0.494)	1.339 (0.518)	1.345 (0.512)	1.386 (0.530)	1.319 (0.508)	1.384 (0.534)
Other sectors	1.564* (0.382)	1.551* (0.381)	1.650** (0.406)	1.617* (0.400)	1.584* (0.388)	1.555* (0.382)
50–249 employees	0.653 (0.189)	0.666 (0.194)	0.641 (0.185)	0.644 (0.187)	0.649 (0.188)	0.653 (0.191)
250+ employees	0.430*** (0.109)	0.434*** (0.110)	0.402*** (0.101)	0.405*** (0.102)	0.444*** (0.112)	0.444*** (0.113)
Cut 1	0.0115*** (0.00543)	0.0118*** (0.00560)	0.0122*** (0.00579)	0.0124*** (0.00590)	0.0220*** (0.0105)	0.0227*** (0.0109)
Cut 2	0.0458*** (0.0211)	0.0471*** (0.0219)	0.0480*** (0.0222)	0.0489*** (0.0228)	0.0882*** (0.0412)	0.0914*** (0.0431)
Cut 3	0.116*** (0.0531)	0.120*** (0.0555)	0.120*** (0.0551)	0.123*** (0.0568)	0.225*** (0.105)	0.234*** (0.110)
Cut 4	0.199*** (0.0909)	0.207*** (0.0954)	0.203*** (0.0931)	0.209*** (0.0964)	0.386** (0.179)	0.403* (0.189)
Cut 5	0.435* (0.179)	0.458* (0.189)	0.436* (0.189)	0.452* (0.189)	0.847 (0.389)	0.893 (0.409)

	(0.198)	(0.210)	(0.199)	(0.208)	(0.393)	(0.418)
Cut 6	1.410	1.505	1.389	1.461	2.766**	2.956**
	(0.640)	(0.689)	(0.633)	(0.671)	(1.283)	(1.385)
Cut 7	6.329***	6.822***	6.146***	6.523***	12.48***	13.47***
	(2.917)	(3.171)	(2.846)	(3.044)	(5.883)	(6.413)
Observations	1,372	1,372	1,372	1,372	1,372	1,372
Iteration 0: log likelihood	-2716.632	-2716.632	-2716.632	-2716.632	-2716.632	-2716.632
Log likelihood	-2611.549	-2602.326	-2630.625	-2621.289	-2606.271	-2597.953
LR $\chi^2(43)$	210.17	228.61	172.01	190.69	220.72	237.36
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0387	0.0421	0.0317	0.0351	0.0406	0.0437

Source: Survey from the “Info Flow Savvy Project–ESF,” 2019.

Notes: Odd ratios, standard errors in parentheses. Weighted estimations.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

Table C4. E-mail overload groups and employees’ life satisfaction: Full results of Table 7

	Life satisfaction					
	Model 1.1	Model 1.2	Model 2.1	Model 2.2	Model 3.1	Model 3.2
E-mail overload groups						
Worktime e-mail overload	0.658*** (0.0664)	0.671*** (0.0682)	—	—	—	—
All time e-mail overload	—	—	0.675*** (0.0978)	0.707** (0.103)	—	—
No e-mail overload	—	—	—	—	1.995*** (0.215)	1.924*** (0.211)
Coping mechanism						
Zero inbox	—	1.014 (0.0525)	—	1.045 (0.0539)	—	1.017 (0.0525)
To-do list	—	0.991 (0.0481)	—	0.981 (0.0475)	—	0.994 (0.0482)
Alertness	—	0.829*** (0.0427)	—	0.828*** (0.0428)	—	0.857*** (0.0446)
Folder/prioritization	—	0.967 (0.0490)	—	0.970 (0.0491)	—	0.977 (0.0496)
Response speed expectations	—	1.092* (0.0550)	—	1.083 (0.0545)	—	1.105** (0.0557)
Individual characteristics						
Men	1.071 (0.114)	1.074 (0.116)	1.030 (0.110)	1.030 (0.111)	1.049 (0.112)	1.057 (0.114)
Age 30–49	0.663*** (0.0945)	0.627*** (0.0909)	0.671*** (0.0959)	0.640*** (0.0932)	0.693** (0.0994)	0.660*** (0.0963)
Age above 50	0.920 (0.162)	0.827 (0.147)	0.890 (0.157)	0.805 (0.143)	0.961 (0.169)	0.879 (0.157)
German	0.944 (0.199)	0.922 (0.194)	0.944 (0.199)	0.926 (0.195)	0.998 (0.211)	0.972 (0.205)
Belgian	0.935 (0.164)	0.950 (0.168)	0.967 (0.170)	0.982 (0.174)	0.976 (0.172)	0.981 (0.174)
French	0.840 (0.123)	0.863 (0.127)	0.884 (0.130)	0.904 (0.133)	0.869 (0.127)	0.886 (0.131)
Portuguese	0.958 (0.280)	1.000 (0.296)	0.893 (0.260)	0.934 (0.276)	0.999 (0.293)	1.026 (0.304)
Other EU-28	1.203 (0.259)	1.185 (0.257)	1.304 (0.283)	1.286 (0.280)	1.275 (0.273)	1.245 (0.269)
Outside EU-28	1.289 (0.381)	1.439 (0.428)	1.321 (0.394)	1.463 (0.438)	1.315 (0.390)	1.441 (0.431)

Couple	1.449*** (0.177)	1.464*** (0.179)	1.473*** (0.180)	1.487*** (0.182)	1.466*** (0.179)	1.472*** (0.180)
Child(ren)	0.968 (0.112)	0.958 (0.111)	0.974 (0.113)	0.962 (0.112)	0.965 (0.112)	0.959 (0.111)
Tertiary education	1.275 (0.197)	1.217 (0.190)	1.231 (0.190)	1.186 (0.184)	1.304* (0.202)	1.256 (0.196)
Master or above	1.255 (0.202)	1.170 (0.190)	1.292 (0.207)	1.214 (0.197)	1.298 (0.208)	1.223 (0.198)
Carpooling	1.246 (0.263)	1.262 (0.266)	1.225 (0.257)	1.249 (0.263)	1.212 (0.255)	1.238 (0.261)
Train	1.534*** (0.244)	1.500** (0.240)	1.463** (0.234)	1.431** (0.230)	1.459** (0.233)	1.432** (0.230)
Bus/tram	1.176 (0.182)	1.177 (0.182)	1.127 (0.174)	1.129 (0.175)	1.146 (0.177)	1.147 (0.178)
Bicycle or walking	1.118 (0.266)	1.071 (0.256)	1.107 (0.265)	1.065 (0.257)	1.130 (0.271)	1.089 (0.263)
0–10 minutes	3.426*** (1.024)	3.568*** (1.075)	3.522*** (1.050)	3.664*** (1.102)	3.408*** (1.017)	3.513*** (1.057)
11–20 minutes	3.160*** (0.712)	3.131*** (0.709)	3.153*** (0.713)	3.121*** (0.708)	3.074*** (0.693)	3.063*** (0.694)
21–30 minutes	2.754*** (0.637)	2.699*** (0.627)	2.721*** (0.629)	2.672*** (0.621)	2.737*** (0.632)	2.699*** (0.627)
31–59 minutes	2.678*** (0.550)	2.604*** (0.537)	2.506*** (0.516)	2.454*** (0.507)	2.549*** (0.523)	2.494*** (0.515)
60–90 minutes	1.500** (0.293)	1.468* (0.288)	1.437* (0.282)	1.409* (0.278)	1.424* (0.278)	1.399* (0.275)
Job characteristics						
Intellectual	0.593*** (0.0920)	0.590*** (0.0915)	0.550*** (0.0860)	0.553*** (0.0863)	0.557*** (0.0862)	0.556*** (0.0861)
Intermediate	0.734 (0.139)	0.777 (0.148)	0.667** (0.127)	0.712* (0.136)	0.703* (0.133)	0.744 (0.141)
Administrative	0.725** (0.116)	0.771 (0.125)	0.648*** (0.104)	0.695** (0.113)	0.690** (0.110)	0.730* (0.117)
Craft	0.618* (0.178)	0.667 (0.192)	0.601* (0.174)	0.654 (0.189)	0.561** (0.162)	0.600* (0.173)
Full time	0.671*** (0.0923)	0.665*** (0.0919)	0.650*** (0.0892)	0.648*** (0.0892)	0.683*** (0.0938)	0.677*** (0.0932)
Supervision	0.984 (0.118)	0.933 (0.112)	1.033 (0.125)	0.971 (0.119)	1.089 (0.132)	1.030 (0.126)
External contacts	1.109 (0.144)	1.114 (0.147)	1.039 (0.133)	1.042 (0.136)	1.216 (0.159)	1.212 (0.161)
Workplace characteristics						
Trade	1.042 (0.320)	1.074 (0.331)	1.103 (0.338)	1.121 (0.344)	0.979 (0.303)	1.014 (0.314)
ICT	0.859 (0.209)	0.852 (0.207)	0.891 (0.218)	0.880 (0.214)	0.907 (0.222)	0.899 (0.220)
Finance	0.943 (0.187)	0.930 (0.185)	0.927 (0.185)	0.913 (0.182)	0.935 (0.186)	0.924 (0.185)
Support services	0.936 (0.201)	0.922 (0.199)	0.971 (0.210)	0.947 (0.206)	1.015 (0.220)	0.994 (0.216)
Public sector	2.177** (0.803)	2.266** (0.837)	2.330** (0.853)	2.386** (0.875)	2.163** (0.799)	2.253** (0.834)
Other sectors	1.239 (0.299)	1.240 (0.301)	1.325 (0.319)	1.312 (0.319)	1.254 (0.302)	1.251 (0.303)
50–249 employees	1.054 (0.299)	1.084 (0.310)	1.058 (0.300)	1.069 (0.305)	1.060 (0.301)	1.082 (0.309)
250+ employees	0.688	0.703	0.667	0.679	0.736	0.744

	(0.170)	(0.175)	(0.165)	(0.168)	(0.182)	(0.185)
Cut 1	0.0408*** (0.0188)	0.0390*** (0.0181)	0.0398*** (0.0184)	0.0380*** (0.0177)	0.0763*** (0.0359)	0.0719*** (0.0341)
Cut 2	0.171*** (0.0768)	0.164*** (0.0743)	0.167*** (0.0753)	0.161*** (0.0727)	0.324** (0.149)	0.306** (0.142)
Cut 3	0.404** (0.181)	0.390** (0.176)	0.393** (0.176)	0.379** (0.171)	0.771 (0.353)	0.732 (0.339)
Cut 4	0.659 (0.295)	0.639 (0.288)	0.639 (0.286)	0.619 (0.279)	1.266 (0.580)	1.206 (0.558)
Cut 5	1.423 (0.636)	1.393 (0.628)	1.372 (0.614)	1.344 (0.606)	2.762** (1.269)	2.653** (1.231)
Cut 6	4.608*** (2.069)	4.556*** (2.061)	4.413*** (1.984)	4.366*** (1.975)	9.050*** (4.185)	8.760*** (4.089)
Cut 7	17.70*** (8.098)	17.55*** (8.087)	16.88*** (7.730)	16.75*** (7.720)	34.94*** (16.47)	33.91*** (16.13)
Observations	1,372	1,372	1,372	1,372	1,372	1,372
Iteration 0: log likelihood	-2720.719	-2720.719	-2720.719	-2720.719	-2720.719	-2720.719
Log likelihood	-2645.352	-2636.724	-2650.272	-2641.633	-2633.266	-2626.488
LR $\chi^2(43)$	150.73	167.99	140.89	158.17	174.91	188.46
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.0277	0.0309	0.0259	0.0291	0.0321	0.0346

Source: Survey from the “Info Flow Savvy Project–ESF,” 2019.

Notes: Odd ratios, standard errors in parentheses. Weighted estimations.

* Significant at 10%; ** significant at 5%; *** significant at 1%.

6 References

- Addas, S., & Pinsonneault, A. (2018). Theorizing the multilevel effects of interruptions and the role of communication technology. *Journal of the Association for Information Systems*, 19(11), 1097–1129. <https://doi.org/10.17705/1jais.00521>
- Allison, P. D. (2001). *Logistic regression using the SAS system: Theory and application* (SAS Instit).
- Ang, M. C. H., Ramayah, T., & Amin, H. (2015). The experience of work life balance for Irish senior managers. *Equality, Diversity and Inclusion*, 34(3), 186–200. <https://doi.org/10.1108/GM-12-2013-0140>
- Arlinghaus, A., & Nachreiner, F. (2013). When work calls—associations between being contacted outside of regular working hours for work-related matters and health. *Chronobiology International*, 30(9), 1197–1202. <https://doi.org/10.3109/07420528.2013.800089>
- Ashforth, B. E., Kreiner, G. E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *The Academy of Management Review*, 25(3), 472–491. <https://doi.org/10.2307/259305>
- Bahri, S., Fauzi, A., & Ahmad, N. S. (2020). A communication overload scale for use with mobile instant messaging in work management. *Digital Business*, 1(1), 100003. <https://doi.org/10.1016/j.digbus.2021.100003>
- Barber, L. K., & Santuzzi, A. M. (2015). Please respond ASAP: Workplace telepressure and employee recovery. *Journal of Occupational Health Psychology*, 20(2), 172–189. <https://doi.org/10.1037/a0038278>
- Barley, S. R., Meyerson, D. E., & Grodal, S. (2011). E-mail as a source and symbol of stress. *Organization Science*, 22(4), 887–906. <https://doi.org/10.2307/20868902>
- Barrero, J. M., Bloom, N., & Davis, S. J. (2021). Why working from home will stick. *NBER Working Paper No 28731*, 1–68. <https://doi.org/10.3386/w28731>
- Bittman, M., England, P., Folbre, N., Sayer, L., & Matheson, G. (2003). When does gender trump money? Bargaining and time in household work. *American Journal of Sociology*, 109(1), 186–214. <https://doi.org/10.1086/378341>
- Bloom, N., Han, R., & Liang, J. (2022). How hybrid working from home works out. *National Bureau of Economic Research Working Paper No. 30292*.
- Boswell, W. R., & Olson-Buchanan, J. B. (2007). The use of communication technologies after hours: The role of work attitudes and work-life conflict. *Journal of Management*, 33(4), 592–610. <https://doi.org/10.1177/0149206307302552>
- Bratterud, H., Burgess, M., Fasy, B. T., Millman, D. L., Oster, T., & Sung, E. (2020). The Sung diagram: Revitalizing the Eisenhower matrix. *Lecture Notes in Computer Science*, 12169.
- Brown, H. (2007). View from the frontline: Email stress. *Health Information on the Internet*, 60(1), 10–11.
- Brown, R., Duck, J., & Jimmieson, N. (2014). E-mail in the workplace: The role of stress appraisals and normative response pressure in the relationship between e-mail stressors and employee strain. *International Journal of Stress Management*, 21(4), 325–347.

<https://doi.org/10.1037/a0037464>

- Büchler, N., ter Hoeven, C. L., & van Zoonen, W. (2020). Understanding constant connectivity to work: How and for whom is constant connectivity related to employee well-being? *Information and Organization*, 30(3), 100302. <https://doi.org/10.1016/j.infoandorg.2020.100302>
- Cai, K., & Zhang, C.-Y. (1996). Towards a research on information pollution. *1996 IEEE International Conference on Systems, Man and Cybernetics. Information Intelligence and Systems*, 3124–3129.
- Castellacci, F., & Tveito, V. (2018). Internet use and well-being: A survey and a theoretical framework. *Research Policy*, 47(1), 308–325. <https://doi.org/10.1016/j.respol.2017.11.007>
- Chesley, N. (2005). Blurring boundaries? Linking technology use, spillover, individual distress, and family satisfaction. *Journal of Marriage and Family*, 67(5), 1237–1248. <https://doi.org/10.1111/j.1741-3737.2005.00213.x>
- Cheung, F., & Lucas, R. E. (2014). Assessing the validity of single-item life satisfaction measures: results from three large samples. *Quality of Life Research*, 23(10), 2809–2818. <https://doi.org/10.1007/s11136-014-0726-4>
- Cotten, S. R. (2021). Technologies and aging: Understanding use, impacts, and future needs. In D. Carr & K. F. Ferraro (Eds.), *Handbook of Aging and the Social Sciences* (pp. 373–392). Academic Press. <https://doi.org/10.1016/B978-0-12-815970-5.00023-1>
- Davidson, R., & MacKinnon, J. G. (1984). Convenient specification tests for logit and probit models. *Journal of Econometrics*, 25(3), 241–262. [https://doi.org/10.1016/0304-4076\(84\)90001-0](https://doi.org/10.1016/0304-4076(84)90001-0)
- DeFilippis, E., Impink, S., Singell, M., Polzer, J. T., & Sadun, R. (2020). Collaborating during coronavirus: The impact of COVID-19 on the nature of work. *NBER Working Paper No 27612*. <https://doi.org/10.2139/ssrn.3654470>
- Dettmers, J., Vahle-Hinz, T., Bamberg, E., Friedrich, N., & Keller, M. (2016). Extended work availability and its relation with start-of-day mood and cortisol. *Journal of Occupational Health Psychology*, 21(1), 105–118. <https://doi.org/10.1037/a0039602>
- Diaz, I., Chiaburu, D. S., Zimmerman, R. D., & Boswell, W. R. (2012). Communication technology: Pros and cons of constant connection to work. *Journal of Vocational Behavior*, 80(2), 500–508. <https://doi.org/10.1016/j.jvb.2011.08.007>
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542–575.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment* ISSN:, 49(1), 71–75. <https://doi.org/10.1207/s15327752jpa4901>
- Duxbury, L., Higgins, C., Smart, R., & Stevenson, M. (2014). Mobile technology and boundary permeability. *British Journal of Management*, 25(3), 570–588. <https://doi.org/10.1111/1467-8551.12027>
- Epley, N., & Kruger, J. (2005). When what you type isn't what they read: The perseverance of stereotypes and expectancies over e-mail. *Journal of Experimental Social Psychology*, 41(4), 414–422. <https://doi.org/10.1016/j.jesp.2004.08.005>

- Eppler, M. J., & Mengis, J. (2004). The concept of information overload: A review of literature from organization science, accounting, marketing, MIS, and related disciplines. In *Information Society* (Vol. 20, Issue 5, pp. 325–344). Taylor & Francis Group. <https://doi.org/10.1080/01972240490507974>
- Eurofound & ILO. (2017). *Working anytime, anywhere: The effects on the world of work*. Publications Office of the European Union, Luxembourg, and the International Labour Office.
- Fitz, N., Kushlev, K., Jagannathan, R., Lewis, T., Paliwal, D., & Ariely, D. (2019). Batching smartphone notifications can improve well-being. *Computers in Human Behavior*, *101*(July), 84–94. <https://doi.org/10.1016/j.chb.2019.07.016>
- Francis, J., Ball, C., Kadylak, T., & Cotten, S. R. (2019). Aging in the digital age: Conceptualizing technology adoption and digital inequalities. In B. B. Neves & F. Vetere (Eds.), *Ageing and Digital Technology* (pp. 35–49). Springer Singapore. https://doi.org/10.1007/978-981-13-3693-5_3
- Gilbert, S., & Kelloway, E. K. (2014). Using single items to measure job stressors. *International Journal of Workplace Health Management*, *7*(3), 186–199. <https://doi.org/10.1108/IJWHM-03-2013-0011>
- Giurge, L. M., & Bohns, V. K. (2021). You don't need to answer right away! Receivers overestimate how quickly senders expect responses to non-urgent work emails. *Organizational Behavior and Human Decision Processes*, *167*, 114–128. <https://doi.org/10.1016/J.OBHDP.2021.08.002>
- Gui, M., & Büchi, M. (2019). From use to overuse: Digital inequality in the age of communication abundance. *Social Science Computer Review*, First Published. <https://doi.org/10.1177/0894439319851163>
- Gupta, A., Sharda, R., & Greve, R. A. (2011). You've got email! Does it really matter to process emails now or later? *Information Systems Frontiers*, *13*(5), 637–653. <https://doi.org/10.1007/s10796-010-9242-4>
- Hair, J. F., Tatham, R. L., Anderson, R. E., & Black, W. (2006). *Multivariate data analysis* (5th ed.). Pearson Prentice Hall.
- Hasan, Z. U., Khan, M. I., Butt, T. H., Abid, G., & Rehman, S. (2020). The Balance between Work and Life for Subjective Well-Being: A Moderated Mediation Model. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 127. <https://doi.org/10.3390/JOITMC6040127>
- Hauret, L., Martin, L., & Poussing, N. (2024). Teleworkers' digital up-skilling: Evidence from the spring 2020 lockdown. *Information Society*, *40*(3), 215–231. <https://doi.org/10.1080/01972243.2024.2333025>
- International Labour Organization. (2016). Workplace stress: A collective challenge. *Report Prepared for the World Day for Safety and Health at Work, 28 April 2016*.
- Iskandar, A. I., Arham, A. F., & Shohaim, N. (2017). The use of social media, e-mail and instant messaging as the predictors of an employee's work performance. *Journal of Academia UiTM Negeri Sembilan*, *5*, 127–136.
- Jackson, T. W., & Farzaneh, P. (2012). Theory-based model of factors affecting information overload. *International Journal of Information Management*, *32*(6), 523–532.

<https://doi.org/10.1016/j.ijinfomgt.2012.04.006>

- Jerejian, A. C. M., Reid, C., & Rees, C. S. (2013). The contribution of email volume, email management strategies and propensity to worry in predicting email stress among academics. *Computers in Human Behavior*, 29(3), 991–996. <https://doi.org/10.1016/j.chb.2012.12.037>
- Karlsen, F., & Ytre-Arne, B. (2022). Intrusive media and knowledge work: how knowledge workers negotiate digital media norms in the pursuit of focused work. *Information, Communication & Society*, 25(15). <https://doi.org/10.1080/1369118X.2021.1933561>
- Kibby, M. D. (2005). Email forwardables: Folklore in the age of the internet. *New Media and Society*, 7(6), 770–790. <https://doi.org/10.1177/1461444805058161>
- Kiser, A. I. T., Porter, T., & Vequist, D. (2011). Employee monitoring and ethics. *International Journal of Digital Literacy and Digital Competence*, 1(4), 30–45. <https://doi.org/10.4018/jdlc.2010100104>
- Kudyba, S. (2020). COVID-19 and the acceleration of digital transformation and the future of work. *Information Systems Management*, 37(4), 284–287. <https://doi.org/10.1080/10580530.2020.1818903>
- Kushlev, K., & Dunn, E. W. (2015). Checking email less frequently reduces stress. *Computers in Human Behavior*, 43, 220–228. <https://doi.org/10.1016/j.chb.2014.11.005>
- Lal, B., & Dwivedi, Y. K. (2010). Investigating homeworkers' inclination to remain connected to work at "anytime, anywhere" via mobile phones. *Journal of Enterprise Information Management*, 23(6), 759–774. <https://doi.org/10.1108/17410391011088628>
- Lancot, A., & Duxbury, L. (2021). When everything is urgent! Mail use and employee well-being. *Computers in Human Behavior Reports*, 4, 100152. <https://doi.org/10.1016/J.CHBR.2021.100152>
- Letmathe, P., & Noll, E. (2024). Analysis of email management strategies and their effects on email management performance. *Omega*, 124, 103002. <https://doi.org/10.1016/J.OMEGA.2023.103002>
- Littman, A. J., White, E., Satia, J. A., Bowen, D. J., & Kristal, A. R. (2006). Reliability and validity of 2 single-item measures of psychosocial stress. *Epidemiology*, 17(4), 398–403. <https://doi.org/10.1097/01.ede.0000219721.89552.51>
- Mark, G. J., Iqbal, S. T., Czerwinski, M., Johns, P., & Sano, A. (2015). Focused, aroused, but so distractible: A temporal perspective on multitasking and communications. *Proceedings of ACM Conference on Computer-Supported Cooperative Work and Social Computing*, 903–916.
- Mark, G. J., Iqbal, S. T., Czerwinski, M., Johns, P., & Sano, A. (2016). Email duration, batching and self-interruption: Patterns of email use on productivity and stress. *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems - CHI'16*, 1717–1728.
- Martin, L. (2017). Do innovative work practices and use of information and communication technologies motivate employees? *Industrial Relations*, 56(2), 263–292. <https://doi.org/10.1111/irel.12173>
- Martin, L., Pénard, T., & Poussing, N. (2022). Are employees happier when staying connected with their companies outside working hours? *Social Science Computer Review*, 40(4),

1035–1053. <https://doi.org/10.1177/08944393211061273>

- Marulanda-Carter, L., & Jackson, T. W. (2012). Effects of e-mail addiction and interruptions on employees. *Journal of Systems and Information Technology*, *14*(1), 82–94. <https://doi.org/10.1108/13287261211221146>
- Mazmanian, M., Orlikowski, W. J., & Yates, J. A. (2013). The autonomy paradox: The implications of mobile email devices for knowledge professionals. *Organization Science*, *24*(5), 1337–1357. <https://doi.org/10.1287/orsc.1120.0806>
- McMurtry, K. (2014). Managing email overload in the workplace. *Performance Improvement*, *53*(7), 31–37. <https://doi.org/10.1002/pfi.21424>
- Misra, S., Roberts, P., & Rhodes, M. (2020). Information overload, stress, and emergency managerial thinking. *International Journal of Disaster Risk Reduction*, *51*, 101762. <https://doi.org/10.1016/J.IJDRR.2020.101762>
- Nguyen, M. H., Büchi, M., & Geber, S. (2022). Everyday disconnection experiences: Exploring people’s understanding of digital well-being and management of digital media use. *New Media and Society*. <https://doi.org/10.1177/14614448221105428>
- Parris, M. A., Vickers, M. H., & Wilkes, L. (2008). Caught in the middle: Organizational impediments to middle managers’ work-life balance. *Employee Responsibilities and Rights Journal*, *20*(2), 101–117. <https://doi.org/10.1007/s10672-008-9069-z>
- Pelly, D., Daly, M., Delaney, L., & Doyle, O. (2022). Worker stress, burnout, and wellbeing Before and during the COVID-19 restrictions in the United Kingdom. *Frontiers in Psychology*, *13*(April), 1–13. <https://doi.org/10.3389/fpsyg.2022.823080>
- Pirkkalainen, H., & Salo, M. (2016). Two decades of the dark side in the information systems basket: Suggesting five areas for future research. *24th European Conference on Information Systems, ECIS 2016*.
- Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008a). The consequences of technostress for end users in organizations: Conceptual development and validation. *Information Systems Research*, *19*(4), 417–433. <https://doi.org/10.1287/isre.1070.0165>
- Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008b). The consequences of technostress for end users in organizations: Conceptual development and validation. *Information Systems Research*, *19*(4), 417–433. <https://doi.org/10.1287/isre.1070.0165>
- Reinke, K., & Chamorro-Premuzic, T. (2014). When email use gets out of control: Understanding the relationship between personality and email overload and their impact on burnout and work engagement. *Computers in Human Behavior*, *36*, 502–509. <https://doi.org/10.1016/j.chb.2014.03.075>
- Rigotti, T., Yang, L. Q., Jiang, Z., Newman, A., De Cuyper, N., & Sekiguchi, T. (2021). Work-related psychosocial risk factors and coping resources during the COVID-19 crisis. *Applied Psychology*, *70*(1), 3–15. <https://doi.org/10.1111/apps.12307>
- Russell, E., Jackson, T. W., Fullman, M., & Chamakiotis, P. (2024). Getting on top of work-email: A systematic review of 25 years of research to understand effective work-email activity. *Journal of Occupational and Organizational Psychology*, *97*(1), 74–103. <https://doi.org/10.1111/joop.12462>
- Saló, M., Pirkkalainen, H., Makkonen, M., & Hekkala, R. (2018). Distress, eustress, or no Stress? explaining smartphone users different technostress responses. *ICIS 2018*

Proceedings.

- Schieman, S., & Young, M. C. (2013). Are communications about work outside regular working hours associated with work-to-family conflict, psychological distress and sleep problems? *Work and Stress*, 27(3), 244–261. <https://doi.org/10.1080/02678373.2013.817090>
- Stanton, J. M., Sinar, E. F., Balzer, W. K., Julian, A. L., Thoresen, P., Aziz, S., Fisher, G. G., & Smith, P. C. (2002). Development of a compact measure of job satisfaction: The abridged Job Descriptive Index. *Educational and Psychological Measurement*, 62(1), 173–191. <https://doi.org/10.1177/001316440206200112>
- Stephens, K. K., Mandhana, D. M., Kim, J. H. J., Li, X., Glowacki, E. M., & Cruz, I. (2017). Reconceptualizing Communication Overload and Building a Theoretical Foundation. *Communication Theory*, 27(3), 269–289. <https://doi.org/10.1111/COMT.12116>
- Stich, J.-F., Tarafdar, M., Stacey, P., & Cooper, S. C. (2019). Appraisal of email use as a source of workplace stress: A person-environment fit approach. *Journal of the Association for Information Systems*, 20(2), 132–160. <https://doi.org/10.17705/1jais.00531>
- Stich, J. F., Tarafdar, M., Cooper, C. L., & Stacey, P. (2017). Workplace stress from actual and desired computer-mediated communication use: a multi-method study. *New Technology, Work and Employment*, 32(1), 84–100. <https://doi.org/10.1111/ntwe.12079>
- Stich, J. F., Tarafdar, M., Stacey, P., & Cooper, S. C. (2019). Appraisal of email use as a source of workplace stress: A person-environment fit approach. *Journal of the Association for Information Systems*, 20(2), 132–160. <https://doi.org/10.17705/1jais.00531>
- Szóstek, A. M. (2011). “Dealing with my emails”: Latent user needs in email management. *Computers in Human Behavior*, 27(2), 723–729. <https://doi.org/10.1016/j.chb.2010.09.019>
- Tarafdar, M., Cooper, C. L., & Stich, J.-F. (2019). The technostress trifecta - techno eustress, techno distress and design: Theoretical directions and an agenda for research. *Information Systems Journal*, 29, 6–42. <https://doi.org/10.1111/isj.12169>
- Tarafdar, M., Pullins, E. B., & Ragu-Nathan, T. S. (2015). Technostress: negative effect on performance and possible mitigations. *Information Systems Journal*, 25(2), 103–132.
- Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007). The impact of technostress on role stress and productivity. *Journal of Management Information Systems*, 24(1), 301–328. <https://doi.org/10.2753/MIS0742-1222240109>
- Tarafdar, M., Tu, Q., & Ragu-Nathan, T. (2010). Impact of technostress on end-user satisfaction and performance. *Journal of Management Information Systems*, 27(3), 303–334. <https://doi.org/10.2753/MIS0742-1222270311>
- Tarafdar, M., Wenninger, H., & Stich, J. (2023). Email overload: Investigating technology-fit antecedents and job-related outcomes. *The Data Base for Advances in Information Systems*, 54(2), 2023.
- Ter Hoeven, C. L., van Zoonen, W., & Fonner, K. L. (2016). The practical paradox of technology: The influence of communication technology use on employee burnout and engagement. *Communication Monographs*, 83(2), 239–263. <https://doi.org/10.1080/03637751.2015.1133920>
- The Radicati Group. (2023). Email statistics report, 2023-27. *Report*.

- van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2015). Internet skill levels increase, but gaps widen: a longitudinal cross-sectional analysis (2010–2013) among the Dutch population. *Information Communication and Society*, 18(7), 782–797. <https://doi.org/10.1080/1369118X.2014.994544>
- van Deursen, A. J. A. M., van Dijk, J. A. G. M., & Peters, O. (2012). Proposing a survey instrument for measuring operational, formal, information, and strategic internet skills. *International Journal of Human-Computer Interaction*, 28(12), 827–837. <https://doi.org/10.1080/10447318.2012.670086>
- Van Veldhoven, M., De Jonge, J., Broersen, S., Kompier, M., & Meijman, T. (2002). Specific relationships between psychosocial job conditions and job-related stress: A three-level analytic approach. *Work and Stress*, 16(3), 207–228. <https://doi.org/10.1080/02678370210166399>
- Verma, N., Dhiman, B., Singh, V., Kaur, J., Guleria, S., & Singh, T. (2024). Exploring the global landscape of work-life balance research: A bibliometric and thematic analysis. *Helicon*, 10(11), e31662. <https://doi.org/10.1016/J.HELIYON.2024.E31662>
- Waber, B. N., Daniel, O. O., Kim, T., & Pentland, A. (2010). Productivity through coffee breaks: Changing social networks by changing break structure. Available at SSRN: <https://Ssrn.Com/Abstract=1586375>.
- Wang, B., Liu, Y., & Parker, S. K. (2020). How does the use of information communication technology affect individuals? A work design perspective. *Academy of Management Annals*, 14(2), 695–725. <https://doi.org/10.5465/annals.2018.0127>
- Watson-Manheim, M. B., & Bélanger, F. (2007). Communication media repertoires: Dealing with the multiplicity of media choices. *MIS Quarterly: Management Information Systems*, 31(2), 267–293. <https://doi.org/10.2307/25148791>
- Wijngaards, I., Pronk, F. R., & Burger, M. J. (2022). For whom and under what circumstances does email message batching work? *Internet Interventions*, 27, 100494. <https://doi.org/10.1016/J.INVENT.2022.100494>
- Wood, S., van Veldhoven, M., Croon, M. A., & de Menezes, L. M. (2012). Enriched job design, high involvement management and organizational performance: The mediating roles of job satisfaction and well-being. *Human Relations*, 65(4), 419–446. <https://doi.org/10.1177/0018726711432476>
- Wright, K. B., Abendschein, B., Wombacher, K., O'Connor, M., Hoffman, M., Dempsey, M., Krull, C., Dewes, A., & Shelton, A. (2014). Work-related communication technology use outside of regular work hours and work life conflict: The influence of communication technologies on perceived work life conflict, burnout, job satisfaction, and turnover intentions. *Management Communication Quarterly*, 28(4), 507–530. <https://doi.org/10.1177/0893318914533332>
- Yang, L., Holtz, D., Jaffe, S., Suri, S., Sinha, S., Weston, J., Joyce, C., Shah, N., Sherman, K., Hecht, B., & Teevan, J. (2022). The effects of remote work on collaboration among information workers. *Nature Human Behaviour*, 6(1), 43–54. <https://doi.org/10.1038/s41562-021-01196-4>
- Yu, L., Chen, Y., & Gong, M. (2023). The duality of ICT-mediated overload: Its nature and consequences. *Information and Management*, 60(8), 103864. <https://doi.org/10.1016/j.im.2023.103864>