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# Alone together: Organizational measures to address pitfalls of virtual collaboration

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## Abstract

*The COVID-19 crisis has made virtual collaboration (VC) an issue across the globe. Employees who once worked in person with their co-workers have had to work from home, relying solely on information and communication technologies to collaborate. This has led to a variety of challenges related to occupational wellbeing (OWB). This study identifies measures organizations have implemented in response. Based on 16 interviews with HR professionals, the findings reveal a number of organizational measures that may help promote OWB in VC.*

**Keywords:** virtual collaboration, wellbeing, measures

## 1. Introduction

For years, companies driven to reduce costs, same time, and enjoy geographic flexibility have relied on distributed teams to ensure competitiveness (Kayworth & Leidner, 2000). Modern information and communication technology (ICT) serves these objectives, enabling teams to communicate, share knowledge, solve problems, and work together regardless of location (Kauffmann & Carmi, 2018). The COVID-19 crisis and the accompanying political measures brought such virtual collaboration (VC; also referred to as teleworking, telecommuting, e-working, remote working, and working from home) to the forefront across the globe. Employees who once worked in person with their co-workers became obliged to collaborate virtually. This has created challenges as organizations search for ways to match productivity and work culture (Mustajab et al., 2020).

A considerable number of studies have already dealt with effects that crystallize in virtually collaborating teams (Cogburn et al., 2010; Espinosa et al., 2015; Henderson et al., 2022; Popovici, 2020). For instance, research shows that the absence of face-to-face meetings can negatively influence employee satisfaction due to the lack of socio-emotional cues

(Fleischmann et al., 2020). Thus, members of virtual teams often feel lonely and excluded (Daniel et al., 2018), which can increase psychological strain and reduce satisfaction (Bentley et al., 2016). There are also issues related to trust: whereas interpersonal communication can promote people's ability to build trust (Kauffmann & Carmi, 2018) and is thus a critical factor in the willingness to share knowledge (McNeish & Mann, 2010), studies have found that members of virtual teams tend to lack trust, which may lead to increased transaction costs as team members control the work of their colleagues. This, in turn, affects job-related satisfaction (Pilllis & Furumo, 2006), thereby negatively affecting occupational wellbeing (OWB).

Most recently published research emphasizes the importance of "strategies [being] put in place to ensure employees who work at home remain socially connected with colleagues ... and that online communication is managed such that work and non-work life boundaries do not become overly blurred" (Pirzadeh & Lingard, 2021, p. 32). Yet, "the academic literature has still little to say on topics such as how to best manage training, development and advancement opportunities for remote workers or how to effectively take into account practical, psychological and managerial aspects in leading remote teams" (Popovici, 2020, p. 471).

This explorative study aims to uncover concrete measures that may effectively cope with the challenges faced by teams that once worked together in person but now must rely on VC. It differs from previous studies in that it aims to investigate practical measures developed by human resource (HR) professionals themselves rather than those derived from a purely theoretical perspective. Further, noting that the literature often lacks a holistic view of OWB, this study follows van Horn et al. (2004) by applying their multidimensional conceptualization of OWB to answer the following research question (RQ): *What measures have organizations taken to cope with the challenges that VC has posed to employee OWB during COVID-19?*

## 2. Theoretical background

OWB can be understood “as a positive evaluation of various aspects of one’s job, including affective, motivational, behavioral, cognitive, and psychosomatic dimensions” (van Horn et al., 2004, p. 366). Although different dimensions of OWB are interrelated, investigating each dimension separately increases the likelihood of finding strategies to promote employee OWB (van Horn et al., 2004). Van Horn et al. (2004) suggest a five-dimensional model of OWB, each dimension of which can be refined into several elements (see Table 1).

Given the virtual setting of collaboration, this paper follows the suggestion of Charalampous et al. (2019, p. 60) by including “switching off from work” in the cognitive dimension. VC may make it difficult for people to stop thinking about work (Delanoëje & Verbruggen, 2020) because the possibility to work always exists, regardless of location (Mann & Holdsworth, 2003), which can affect a person’s cognitive weariness (Charalampous et al., 2019).

Furthermore, it is vital to understand how challenges and OWB are related. Dodge et al. (2012, p. 230) define wellbeing (WB) as “the balance point between an individual’s resource pool and the challenges faced.” This implies that “[e]ach time an individual meets a challenge, the system of challenges and resources comes into a state of imbalance, as the individual is forced to adapt his or her resources to meet this particular challenge” (Kloep et al., 2009, p. 337). Thus, organizations need to reduce challenges or enhance and recharge employee resources to support a balanced state of OWB.

**Table 1. Research framework**

Dimension	Elements	Definition	Source
affective WB	affect	emotions and feelings	(van Horn et al., 2004)
	job satisfaction	being satisfied with one’s job	(van Horn et al., 2004)
	organizational commitment	“employee identification with and involvement in the organization they work for”	(van Horn et al., 2004, p. 367)
	emotional exhaustion	“feelings of being overextended and depleted of one’s emotional resources”	(Maslach, 1993; van Horn et al., 2004, p. 367)
professional WB	autonomy	the degree to which one can act without coercion	(van Horn et al., 2004)
	aspiration	the degree to which one seeks new challenges and has “intrinsic motivation” or “growth-need strength”	(van Horn et al., 2004, p. 367)
	professional competence	an individual’s “ability to cope with problems” at work	(van Horn et al., 2004, p. 367)
social WB	depersonalization	the feeling of indifference or negative attitudes toward colleagues at work	(Maslach, 1993; van Horn et al., 2004, p. 369)

	quality of social functioning	“the degree to which one functions well in one’s social relations at work”	(van Horn et al., 2004, p. 369)
cognitive WB	cognitive weariness	limitations to a person’s ability to focus on tasks, take in new information, and concentrate	(van Horn et al., 2004, p. 369)
	switching off from work	difficulty in stopping thinking about work	(Charalampous et al., 2019)
psychosomatic WB	psychosomatic complaints	health complaints related to internal conflict or stress	(van Horn et al., 2004, p. 369)

A significant part of research has dealt with effects of VC on employee OWB, and there have been several literature reviews on this topic (e.g., Charalampous et al., 2019; Morrison-Smith & Ruiz, 2020; Popovici, 2020). The COVID-19 crisis made VC research important once again. Many studies since (e.g., Hu & Subramony, 2022; Kaltiainen & Hakanen, 2022) have relied on surveys to investigate how the pandemic influenced subjective WB, providing valuable insights into the challenges VC poses to an employee WB. Little research, however, has sought to identify measures that address these challenges. One study (Zacher & Rudolph, 2021) investigated the effects of an individual’s coping strategies on that person’s subjective WB, but there is a lack of research into organizational reactions to the crisis to identify measures that may be effective in promoting OWB in VC.

The pandemic created a unique opportunity for further research in this area, as many organizations and employees were forced to switch much of their operations to a virtual setting almost immediately. This has made it possible to investigate how a variety of organizations have coped with the challenges of VC beyond those that were predisposed to collaborate virtually. Thus, this study aims to complement existing research on measures companies implemented to cope with challenges faced in VC during COVID-19, and it proposes future research and implications for practice.

## 3. Methods

### 3.1. Data collection

HR professionals, who possess intimate knowledge of measures organizations have taken to address potential challenges VC poses to OWB, were interviewed to gain an in-depth understanding of the subject. The sample of interviewees includes a) HR managers, b) HR staff, c) HR consultants, and d) senior managers. These experts all come from knowledge-intensive organizations that had cultivated a culture of presence and then, because of the pandemic, had to shift to VC. This affected the organizations as a whole, and the HR professionals as individual employees. The data,

therefore, reflect both the work of these interviewees in the context of their work to develop and implement measures for their entire organizations, but also their own direct experiences in making the shift to VC from the in-person norm to which they had grown accustomed.

Participants were recruited primarily via a random search for HR professionals in German-speaking Europe (Germany, Austria, and Switzerland) using LinkedIn to avoid “backyard research” and rule out any impact of personal relationships between the researcher and interviewees. Five other experts were contacted via phone or mail since there was an indirect contact through an acquaintance. The final sample comprises 16 experts from 13 organizations based in Germany. Prior to the interviews, all participants were assured of the confidentiality of any information shared, and each signed a declaration of consent to be recorded. Interviewees were numbered consecutively to ensure their anonymity (see Table 2).

**Table 2. Demographic data of participants**

Reference	Sex	Organizational size	Expert category	Agility level	employees in VC	Team avg age range (in yrs)
I01	Fem	200	b)	High	90%	30-35
I02	Fem	600	b)	High	90%	25-30
I03	Male	290,000	d)*	Low	95%	40-45
I04	Fem	262	b)	High	90%	30-35
I05	Fem	290,000	a)*	Low	95%	40-45
I06	Fem	11	c)	High	100%	30-35
I07	Fem	290,000	a)*	Low	90%	40-45
I08	Male	290,000	a)*	Low	90%	40-45
I09	Fem	162	a)	High	100%	25-30
I10	Male	900	a)	Low	100%	45-50
I11	Fem	1,100	a)	Medium	60%	30-40
I12	Male	1,000	a)	Low	95%	30-35
I13	Fem	52	a)	High	95%	30-35
I14	Male	15	c)	High	100%	25-30
I15	Male	900	d)	Medium	95%	35-40
I16	Male	338,000	d)	Medium	95%	25-30

\* experts belong to the same organization

The semi-structured interview guideline used has five parts and 17 main questions. The first, introductory part informs the experts about the research approach and aims at ensuring a common understanding of the topic. In the second part, the experts are then asked to share information about their employer organizations. In a third part, they are asked to discuss the collaboration within their organizations before and during COVID-19; the objective is to gain insights into the main concerns since the transition to VC. The fourth part then goes into detail by asking about challenges employees have faced with respect to each of the five dimensions of OWB (see Table 1), setting up the inquiry about

organizational measures in the next step. The fifth part asks for suggestions on what else should be considered in the current study, to help discover any potential incompleteness.

The interviews were conducted in German by telephone (n=14) or video call using Zoom (n=2) between 4 October 2020 and 4 February 2021. All interviews were recorded with the application “Just Press Record.” There are 593 minutes of interview material in total, with the average interview lasting 37 minutes.

### 3.2. Data analysis

The data analysis follows the approach suggested by Mayring (2014, p.45), that is, transcript-based analysis. The recordings were transcribed fully and literally. The transcription process of the 16 interviews resulted in 134 pages of text, which were then coded according to the process described in the next section.

The qualitative analysis was initially conducted deductively based on a nominal category system, following the approach suggested by Mayring (2014, p. 95). The five dimensions of OWB (see Table 1) form the main categories, with the elements of the framework represented by the subcategories.

Given that measures are always linked to challenges, there was a two-fold coding process. All challenges mentioned in the interviews were assigned to the corresponding subcategories (the “elements” in Table 1), with color-coding used to indicate whether a statement refers to the organization or describes an interviewee’s personal situation. Measures were then mapped directly to the context-specific challenges. Measures may be coded more than once if reported in different contexts and thus address different challenges. Additional categories were identified inductively during the coding process, since text modules within the subcategories (elements of the framework) display high heterogeneity (Mayring, 2014, p. 104).

A coding guideline was compiled to guarantee consistency during the coding process, including a definition, anchor example, and coding rules “where there are problems of delineation between categories” (Mayring, 2014, p. 95) for each of the subcategories. This coding guideline was then applied to the data using the analysis software MAXQDA. The coding process was highly iterative and was repeated until consistency within categories and their definitions was reached.

### 4. Findings

The following pages present the findings deduced from the data, with subsections corresponding to the five dimensions of OWB by van Horn et al. (2004)

introduced in Table 1. For each dimension, the challenges and challenge-oriented measures reported by interviewees are outlined, direct quotes (translated from German) are included as a way to increase transparency concerning the interpretation of the findings. Table 3 is an overview.

## 4.1. Affective wellbeing

**4.1.1. Challenges.** With respect to the affective WB of employees, interviewees reported potential challenges from **reduced organizational commitment**. Some experts witnessed a decline over time (I06; I07) as personal relationships between colleagues declined through VC as a result of communicating only via ICT (I01; I06). Such relationships can be an important source of motivation, as one interviewee noted, describing personal relationships as “something that gives me a bit of motivation, that gives me the drive to somehow muster up any elation for my work ... if [colleagues] are physically removed from me ... then it’s somehow harder to hold on to it” (I01).

It was suggested further that reduced commitment is triggered by increased invisibility of employees when collaborating only via ICT (I01; I06). Hence, one interviewee suggested that employees in larger organizations are more likely to be less committed to their work due to higher anonymity (I01), noting, “In larger companies ... not everyone knows everyone else ... and I can also relax a bit” (I01).

As for employee satisfaction regarding VC, many interviewees agreed that employee feedback had been quite positive at the beginning of forced remote working, indicating high satisfaction, but that **satisfaction had decreased** over time (I02; I03; I08; I10; I13; I14). One HR manager shared her experience: “After three to four weeks at most, colleagues contacted us and said they were going crazy at home – which is how they put it” (I13).

Further, interviewees identified **emotional exhaustion** as a potential risk, because the constant availability (I11) VC engenders can lead to problems switching off from work, and employees can become drained from intensive technology usage (I10; I14). One HR consultant compared previous in-person meetings to complete reliance on videoconferencing: “You probably can’t manage more than three or four video calls in one day without being completely screwed up afterwards, because you’re always present here now, and ... the spotlight is directed at you differently than when you’re sitting at a conference table” (I14).

**4.1.2. Measures.** Given the fact that employee feelings and satisfaction reflect the overall mood during the COVID-19 pandemic and the unlikelihood that they

could be clearly delineated between work-related feelings and private worries, central measures focus mainly on providing different **points of contact** to address different concerns. One organization provides organizational support in the form of hotlines (I07), while others conduct one-on-one conversations between managers and employees (I03; I05). A senior HR manager described his daily routine as follows: “Whenever I have time ... I move my finger over the organization chart and call someone ... just asking ‘How are you? And how are things?’ That is how you gradually come to keep in touch ... There are no conscious work-related thoughts behind it” (I03).

A high degree of **support by supervisors** is reported to moderate the negative effects on satisfaction of the abrupt transition to VC. When supervisors communicate openly, employees feel that they are up-to-date and that their organizations are doing their best to support them wherever possible (I04; I13). Demonstrating trust by offering flexible work times (I14) and allowing employees to track their own working hours (I15) was suggested as a way to increase satisfaction (I14; I15).

Another interviewee highlighted the importance of a team’s **interpersonal relationships** as a way to enhance organizational commitment. She sought to create a social network among employees and described the organization’s aim as follows: “If someone doesn’t feel especially connected, we respond to them in particular and involve them better. [That way we don’t] leave anyone behind and let them drift into dissatisfaction” (I01).

Others emphasized the need to **show appreciation** actively to recognize and foster employee organizational commitment. To that end, one organization sent small goodies, with notes expressing appreciation, to employees’ homes (I01; I04): “One time, we sent a little breakfast package to their homes, sort of thanking people for doing their jobs despite the circumstances” (I01). Showing employees how they contribute to team success is another way to make employees feel more valued and committed (I14).

While none of the HR professionals interviewed had come up with concrete proactive measures to cope with the challenge of emotional exhaustion, they were aware of the increased exhaustion since shifting to VC. One HR consultant (I06) explained, “Honestly speaking, I think that for the most part no attention is paid to this ... **The employee has to take care of himself** at the moment” (I06).

## 4.2. Professional wellbeing

**4.2.1. Challenges.** According to the interviewees, most challenges that affect employee professional WB are

linked to inexperience with VC and reduced possibilities for professional development, both formal and informal. In addition to the challenge of **becoming familiar with new IT tools**, which is a particular challenge for older employees who may be less receptive to new ICT (01; I05; I11; I12; I15; I16), they noted challenges related to overall employee inexperience with VC (I08; I09; I12; I14). These include leading others over distances (I08; I12; I14) and guiding discussions virtually (I08; I12).

With respect to professional development, the virtual setting can create challenges to **promotions**, given that important aspects of evaluating someone's suitability for a promotion may fall by the wayside (I08). One HR manager expressed his concern about "want[ing] to develop someone today," noting that "a manager needs a certain empathy, [but] it is of course difficult to determine virtually whether he has empathy or not. Is he accepted by his colleagues? So, I think there will be major challenges for the future" (I08).

Organizations also raised **concerns about informal learning**, which depends heavily on personal interaction, chance encounters, and "learning by watching" (I01-I03; I05; I06; I13; I16). One HR manager said, "When I'm in the office ... colleagues are sitting to my left and right [and] you give each other feedback [such as asking] 'Why did you do it that way?' ... I don't have that now [in VC]" (I16).

Another interviewee (I02) noted how communicating has changed. Employees increasingly pass on only fact-based knowledge, hampering knowledge exchange and informal learning (I02). This is aggravated by the fact that employees demonstrated greater inhibition about asking questions via ICT compared to in-person communication (I01; I05), which is particularly problematic for new employees and trainees (I01; I13). All these factors may result in a diminished transfer of passive knowledge (I06).

**4.2.2. Measures.** To assist employees with technical issues and new IT tools, organizations provide **technical support** through hotlines (I12; I08) and web-based training (I10; I12). While hotlines clarify issues of immediate interest, web-based training includes frequently asked questions such as how to adjust the screen (I10) or how to use new communication tools (I12). In addition to organizational IT support, one HR manager emphasized the need for **peer-to-peer support** and employees' own initiatives (I12).

To compensate for the lack of informal learning, interviewees reported reliance on online **group meetings to learn from one another** and foster knowledge exchange (I01; I04; I05; I13). Some group meetings in one organization are so-called "brown bag" sessions held during lunch time, with one person giving a presentation and anyone interested in the topic invited

to join. These allow for the sharing of relevant topics – even those are not specifically work-related – across departments (I01). Another organization (I05) introduced online meetings on different topics held in different virtual rooms. Yet another organization has tried to enhance informal learning by introducing a tandem program (I02) that involves assigning mentors and encouraging employees to complete tasks together, learn from one another, and thus promote knowledge exchange (I02).

### 4.3. Social wellbeing

**4.3.1. Challenges.** Avoiding depersonalization was identified as a major challenge. Interviewees stated that VC leads to **fewer personal interactions**, thus inhibiting socializing (I01; I03; I07; I10; I12-I16), which in turn may hinder the fostering of interpersonal relationships (I07; I09-I11). Employees with fewer interpersonal relationships risk growing lonely (I03; I07) when working from home for long periods (I08; I12). Consequently, VC was reported to have a negative effect on group cohesion (I02; I03; I06; I14). One HR professional reported that the feeling of being less connected to the group is even stronger if some colleagues still go to the office: "If you work from home and the rest [of your coworkers] are in the office for certain appointments ... that somehow has an effect on how you feel as a team. This feeling of exclusion increases when you are not in the office but other colleagues are" (I02).

The challenge of feeling part of the group is even worse for new employees (I01; I04, I09; I12). One interviewee spoke of the challenge of **becoming part of a new team** when meeting only virtually and thus having no casual interaction: "No one just happens to walk past you, and you don't meet in the kitchen [where] small talk starts. And if you didn't already know the people ... you don't have the opportunity to set a time to get to know each other" (I01).

In addition, interviewees suggest that increased depersonalization can be attributed to the fact that VC hampers the exchange of socio-emotional cues and leads to a **loss of non-verbal information** (I08; I14). As one HR manager stated, "It is indeed a challenge to maintain the interpersonal relationship, since you can no longer perceive those subliminal things that sometimes resonate" (I08). This can lead to unspoken things being assumed, which makes it more difficult for employees to be sensitive toward each other (I13; I15). As one manager put it, "When I see that others are still working on a project, it's normal to ask, 'Hey, can I help you with something?' ... Just looking him in the face and seeing that he looks really stressed right now, and maybe I should offer my help, is something that disappears ...

you need a lot of empathy to know that a voice sounds different” (I15).

A lack of team cohesion was further reported to have a negative effect on the **quality of social functioning** (I01; I07; I10; I12; I16) and, thus, on team performance (I12). This can be explained by the fact that employees are more cooperative if they feel connected and have a sense of team spirit (I01; I16). As one interviewee said, “You function better in a team if you somehow feel closer ... If something like [social interaction] is completely omitted ... then you dial into a meeting [and] you just don't have a connection to them. So you just work tasks off” (I01).

Other challenges affecting the quality of social functioning were linked to greater difficulty communicating when relying only on ICT. Communication in virtual settings, for instance, makes it **difficult to respond quickly** (I01; I05; I06, I13), which may result in less efficiency and innovation (I04). One senior manager confirmed this: “Basically you have to hold more meetings, because you cannot easily ask the person next to you ‘tell me, do you know this and that?’” (I15).

Interviewees also reported **coordination difficulties** stemming from invisibility, that is, not knowing whether someone is available to talk (I10; I05); the multiplicity of communication channels (I04; I07; I09); and differences in working hours resulting from employee’s increased flexibility in establishing their own work schedules (I06; I07).

Other interviewees indicated that employees are rather **reluctant to engage** in virtual conversations (I03) or contact others actively (I01; I04; I07; I13). This may result in social withdrawal and fewer inquiries, which hinders knowledge exchange (I02) and can result in valuable information getting lost (I03).

In addition, HR professionals expressed concerns over **less mutual knowledge** due to the lack of regular personal interactions (I07; I09-I11; I15). One senior manager compared the current situation to previous work when employees were at the office: “Normally, my employees have the same information that I have as a manager, as the information gets out around the office ... [Now in VC] I have noticed that there are topics where I realize, oh shit, I haven’t communicated at all ... you have more coordination effort” I(I15). Another remarked that even regular meetings do not guarantee the proper exchange of information: “I have locations where people hardly participate, so information falls by the wayside, because I don't know if they read my e-mails” (I07).

**4.3.2. Measures.** Fostering group cohesion emerged as the main strategy to promote employee social WB. Eight interviewees emphasized the importance of **regular**

**meetings** to foster informal communication and socializing (I01; I02; I07-I09; I11; I12; I14). Some also underscored the importance of videoconferencing, not only to hear voices but also to see facial expressions and emotions (I02; I11; I12). When videoconferencing, they suggested asking questions about employees’ personal WB (I11; I14). Cohesion is strengthened through sharing private information and fears with the group. As one HR consultant stated, “The more vulnerable I show myself, the higher the quality of the interpersonal relationship” (I14).

In addition to regular informal meetings, the majority of organizations (n=13) organize **social activities** and events to encourage social interaction and foster group cohesion. They have formed groups where they are together on a call while jogging (I01; I02), online book clubs (I04), and conducted weekly virtual game nights (I02; I09). Others arrange occasional virtual get-togethers, such as drinking beer after work (I03; I13), eating pizza (I08), or holding virtual parties (I04; I05; I11). Some experts emphasized the need for individual measures that fit the team (I10; I12; I16).

Further, social measures should always be voluntary (I02; I13), even if that means only the same people always join (I02), as one HR consultant stressed: “You will always have people who say ‘that’s not for me.’ As a boss, you shouldn’t make the mistake of saying that you’re somehow ‘offended’ ... The effects are better when [employees] join voluntarily” (I14).

Despite all experts reporting positive feedback on their social activities and high levels of participation, **three interesting observations** were made. First, employee participation in online social activities increased during social lockdowns, when the in-person social interactions employees prefer were not allowed during the pandemic by government decree (I03). Second, participation decreased if there were too many events in a week (I02). Third, employees’ participation was higher when they already knew each other, because people feel intimidated about joining a virtual group event with strangers (I01).

One interviewee implemented a “**virtual hangout room**” that employees could jump into whenever they felt like talking to colleagues. As she explained, “It worked very well in the group of 40 people who all knew each other beforehand. Then central marketing ... tried to implement this on a larger scale, and they found that people are inhibited to join when they don’t know each other ... So, it’s a bit of a prerequisite that people already know each other personally... Who’s there? What can I talk to them about? What are they like?” (I01). To avoid the anxiety of being new in a group, organizations (I04; I05) introduced “coffee roulette” using a small bot implemented in a Slack Channel that would randomly connect colleagues in a virtual room

while drinking coffee (I04). In this way, employees got to know previously unknown colleagues on a one-on-one basis.

Moving to factors affecting the quality of social functioning, interviewees suggested establishing **clear communication rules** (I04; I06; I09; I11; I14) in order to avoid problems related to coordination. These concern which platforms are used to communicate (I09; I11), documentation (I04), and how to inform colleagues about one's availability. As one HR consultant explained, "In the morning, people write 'good morning' so that you know, okay, now he's there. And they also let you know, 'I'm taking a two-hour lunch break now' ... Rules are needed for collaboration" (I14).

To combat the tendency to withdraw socially when collaborating virtually, two interviewees (I13; I03) noted the importance of **contacting people individually** rather than within a group. Doing so helps allay fears of speaking publicly (I13), and employees share their ideas more readily. Another HR professional suggested **casual chatting**. "We've also tried to reduce inhibitions by chatting in Slack ... we don't just share official work-related information, but also private things. We noticed that it became much easier to ask a question where otherwise you wouldn't have written a message" (I04).

#### 4.4. Cognitive wellbeing

**4.4.1. Challenges.** With respect to employees' cognitive WB, most experts (n=9) noted that employees were having **trouble switching off from work**. The unlimited reachability enabled by ICT leads to longer working hours (I02; I10; I11; I13; I16) and fewer breaks (I02) compared to previous work in the office. One HR manager expressed her concerns: "I no longer have a regulator who somehow says, 'so now turn off the computer and now you're free' ... It blurs [the line between] the week and the weekend" (I05).

When collaboration relies solely on ICT, and the screen becomes the main focus, workdays become monotonous. This can negatively affect concentration over time (I10; I16) or, as one HR manager put it, "If I look out the same window, at the same tree, day in and day out, doing the same activities, I think it's only human that it becomes harder to concentrate" (I16).

**4.4.2. Measures.** In order to avoid cognitive weariness caused by problems switching off from work, organizations count on **informative conversations** (I09; I10; I13; I14) and online education (I11; I12) to provide recommendations for preventive strategies. These conversations and courses focus on sharing best practices, such as taking breaks (I10; I16) and developing daily routines (I09; I14). One HR manager

advised employees as follows: "I said, for example, that when I finish working, I pack up all my work stuff and put it on a table in the corner, and then it's the end of the day for me" (I09).

The same HR manager suggested **tracking the actual hours worked** to avoid blurred distinctions between work and free time (I09) and better observe specified working hours (if established by the organization). One organization even considered a **server shutdown** as a preventive measure (I12). Other organizations, however, expressed their reluctance to do that, as it would be incompatible with flexible work hours (I08; I09). As one interviewee put it, "If people aren't productive before 10 a.m., they don't start until 10 a.m. And, accordingly, I can't say, 'You'll finish at 6 p.m.'" (I09). As an alternative to server shutdowns, one organization conducts shared closings times at least once a week by setting up a meeting to "call it a day!" (I13).

#### 4.5. Psychosomatic wellbeing

**4.5.1. Challenges.** As for employees' psychosomatic WB, two experts mentioned work-related **psychological strain** as a challenge (I05; I11) – but mostly a long-term challenge (I08, I12). Factors identified as triggering psychological strain include having trouble switching off from work (I05; I11) and the intensity of ICT usage. In line with that, one HR manager noticed an increase in mental health related sick leaves (I05), but most other interviewees reported either no difference (I09; I16) or even a reduction in sick leaves overall (I05; I08; I10; I12; I13) once VC from home began. As one manager reported, however, this could mask actual illness. "Many still work from home unless they are so sick that they can't stand up ... I have a buddy who has been on sick leave for four weeks ... but he sits at home at his desk for 10 hours [a day]" (I10).

**4.5.2. Measures.** In order to counteract mental health problems, organizations provide **consultative support** through workshops (I07; I11), hotlines (I12), and information sheets (I09-I11; I13; I15), as well as live training that involves group exercises (I04; I07-I09; I12). Among other things, the workshops and information sheets address health and self-care topics (I09-I11; I13), as well as relaxation exercises to perform at home (I09; I11; I15). Training and joint sports activities are a good way to offset the strain of constantly working (I04). Five interviewed (I09; I10; I13-I15) admitted that they had not yet introduced any compensatory measures and agreed on the need for proactive measures.

**Table 3. Organizational measures**

OWB	Elements	Measures	Reference
affective WB	job satisfaction	virtualize administrative processes	(102)
		offer training opportunities	(102)
		provide financial support	(108)
		conduct regular surveys	(109, 113, 114)
		promote open communication	(104, 113)
	feelings	offer flexible working time	(114, 115)
		conduct regular employee surveys	(107)
	emotional exhaustion	provide organizational support	(107, 103, 105)
		Reported measures only addressed emotional exhaustion indirectly	
	organizational commitment	define cooperate values	(106, 114)
		show recognition and appreciation	(101, 104)
		foster interpersonal relationships	(101, 104)
		show trust toward employees	(114)
guarantee transparency		(114)	
professional WB	aspiration	provide learning platforms	(102, 107, 109, 110, 113)
		conduct online group meetings	(101, 104, 105, 113)
		implement "brown bag" sessions	(101, 105)
		hold videoconferences	(113)
		introduce tandem programs	(102)
	professional competence	provide technical support	(105, 108, 112)
		provide consultation hotlines	(112, 108)
		offer web-based training	(112, 110)
		conduct regular meetings	(101, 102, 107, 108, 109, 111, 112, 114)
		hold video conferences	(102, 111, 112, 116)
social WB	depersonalization	conduct regular personal inquiries	(111, 114)
		introduce running groups	(101, 102)
		introduce book clubs	(104)
		introduce game nights	(102, 109)
		introduce group dinners after work	(103, 108, 113)
		conduct virtual parties	(101, 104, 105, 111)
		introduce coffee roulette	(104, 105)
		conduct regular meetings	(109, 113, 115)
		foster knowledge exchange	(102, 103, 106, 109, 113)
		introduce tandem programs	(102)
	quality of social functioning	establish clear communication rules	(104, 106, 108, 111, 114)
		document information	(104)
		carry out individual queries	(113, 103)
		foster interpersonal relationships	(104)
		provide flexible time models	(108, 111, 112, 113, 114)
cognitive WB	cognitive weariness	provide flexible time models	(108, 111, 112, 113, 114)
		conduct informative conversations	(109, 110, 113, 114)
	switching off from work	provide educational courses	(111, 112)
		encourage taking breaks	(110, 116)
		develop daily routines	(109, 114)
		encourage tracking of working hours	(109)
		introduce sport challenges	(116)
		finish work together	(113)
psychosomatic WB	Psychosomatic complaints	provide workshops on self-care	(109, 110, 111, 113)
		provide relaxation exercises	(109)
		spread information sheets	(109, 110, 111, 113, 115)
		provide live trainings to exercise	(104, 107, 108, 109, 112)
		provide ergonomic work equipment	(103, 106, 109, 113, 115)
		provide consultation hotlines	(112)

## 5. Discussion and implications

The next pages reflect on the research results and outline the main contributions of this empirical study. Four research-guiding propositions are provided.

The context-specific setting of the study afforded interesting conclusions. For instance, new hires did not have the opportunity to introduce themselves personally to their new coworkers, since in-person meetings were temporarily eliminated. This made it possible to discover that the success of online social activities

depends on whether employees have previously met in person; those who had not were often reluctant to participate. Interviewees also emphasized that participation in online activities must always be voluntary to avoid making employees feel intimidated. This finding may reflect that prior to the pandemic, VC tended to involve individuals who had opted for it and that the (more extroverted) personalities of those individuals may have included having fewer or no inhibitions about contacting people and interacting with them virtually.

The study findings also suggest that the number of activities and the time devoted to them should not exceed certain amounts per specific periods. While interviewees generally reported high levels of participation in online activities, they also noted decreased participation once certain amounts of online social interactions were reached. This can be linked to "competing demands on members' attention and commitment" (Chen & McDonald, 2015, p. 495), social overload (Leonardi et al., 2010), or employees being tired of spending so much time in front of their screens. Therefore, the study suggests that:

**Proposition 1:** *The success of virtual measures to foster social interaction depends on whether employees knew each other beforehand, whether participation is voluntary, and the number and duration of online events within a given period.*

Furthermore, as the COVID-19 pandemic led to forced virtualization – there was no self-selection mechanism for people to decide that they wanted to shift their work to VC – and paved the way for unique insights (Hu & Subramony, 2022). The findings reveal that the demand for social activities online depends on possibilities for work-life balance. Interviewees reported that participation in online social activities increased during mandated social lockdowns, when in-person activity was not allowed, but decreased when lockdown rules were relaxed. This may have been the result of a diminished need for online social interaction when the possibility to meet with friends in person existed (Kaltainen & Hakanen, 2022). However, it would be also conceivable that the more social a person is, the more social contacts s/he needs at work. Thus, measures need to be tailored to fit the context and team. Future research may investigate how the need for social interaction is linked to different contextual factors.

**Proposition 2:** *Organizations should strive for tailored team-specific social activities, given that the need for social activities depends on the extent to which communication is being restricted to ICT use, the possibilities for achieving private balance, and individual factors such as preferences.*

In addition, during the study there were social lockdowns decreed by the government that forbade

almost all physical interaction outside of people's homes. Combined with full-time, obligatory VC, this led to an extreme situation in which most interaction took place online. This led organizations to have to confront increased negative effects on the psyches of employees (Kaltainen & Hakanen, 2022; Zacher & Rudolph, 2021). This study's results show that organizations hardly ever introduced strict regulatory mechanisms (e.g., server shutdowns) to guarantee psychological WB. Instead, to promote it, organizations relied heavily on helping the workforce become capable of self-directed coping, such as with workshops, information sheets, and conversations. The responsibility for recharging one's resources and coping with challenges was left largely with individuals. While this approach was criticized by some interviewees, Zacher & Rudolph (2021) confirm that self-sufficient coping has a positive effect on the psyche.

To foster professional or social WB, the interviewees' organizations implemented more typical team-related solutions, such as "brown bag" sessions, technical support, and communication rules. Further inquiry would be required to compare the observations of the HR professionals interviewed with the actual perceptions of employees and thus determine the effectiveness of the suggested measures.

**Proposition 3:** *Whereas organizations aim to promote social and professional WB through typical team-related measures, they tend to rely on more personalized measures to address challenges linked to psychological health, such as by providing training to help make the workforce capable of self-directed coping.*

This study supports and extends previous research by confirming that professional isolation can be a challenge within VC. Based on employees' self-reported perceptions, McDonald et al. (2008) suggest that professional isolation stems from the fact that working from home is often seen as being absent, and employees become less visible (Montreuil & Lippel, 2003). However, this likely plays a minor role in the present study, as absence from the workplace was compulsory.

The present study reflects the perspective of the HR management side and indicates that supervisors face challenges when it comes to evaluating an individual's suitability for promotion, due in large part to the reduced transfer of socio-emotional cues in VC (Kauffmann & Carmi, 2018). Thus, HR managers have difficulties evaluating employees' soft skills. When VC is once again only voluntary, it may well be that both employee perceptions of being "absent" and management views regarding the lack of socio-emotional cues from those working in VC may affect professional WB.

Before the pandemic, implicit learning happened more naturally through learning by watching, which is very difficult in VC while working physically separated from colleagues. Thus, VC may increase the gap between introverted and extroverted people, as VC demands a more proactive attitude to collaborate as part of a team. The findings suggest that networking and mentoring are crucial for employees to develop professionally and thus promote professional WB.

**Proposition 4:** *Mentoring plays an increased role in VC as professional WB may suffer from employees becoming invisible; prejudice against people working from home; a lack of implicit learning; and reduced transmission of socio-emotional cues, which may lead to difficulties in evaluating the suitability of employees for promotion.*

**Limitations.** This study does have several limitations. The results are based on individual opinions from HR staff, consultants, and senior managers. While the focus on HR-related professionals seems reasonable as a way to identify organizational measures, it could be argued that employees would offer even richer empirical evidence. In addition, the generalizability of the results could be increased by investigating larger samples, both quantitatively and qualitatively. Finally, this paper investigated VC during a global pandemic, which may limit the generalizability of the results even further. The results show that obligatory full-time VC during the study period – a special circumstance – allowed for gaining valuable insights that would not have been possible under "normal" circumstances.

## 6. Concluding comments

This paper concludes that future research should adopt a multidimensional conceptualization of OWB that reflects its underlying complexity. Practitioners must also rely on a combination of measures to promote OWB. Furthermore, this study highlights the importance of considering contextual factors when investigating – or practicing – VC. The effects of VC on OWB may depend on the presence/degree of moderating variables, ranging from individual factors such as personal preferences to factors pertaining to the team as a whole, such as whether employees knew each other before VC. Increased awareness in this regard may help organizations develop tailored measures to support employees and mitigate the potential pitfalls of VC.

The pandemic redefined where we work and how we collaborate. As organizations continue to provide possibilities for VC, this study can help inform the development of future working models and inform managers on how to deal effectively with challenges in VC.

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