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The COVID-19 Crisis and Telework: A Research Survey on Experiences, Expectations and Hopes

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ABSTRACT

The COVID-19 Crisis and Telework: A Research Survey on Experiences, Expectations and Hopes*

While a considerable number of employees across the globe are being forced to work from home due to the COVID-19 crisis, it is a guessing game as to how they are experiencing this current surge in telework. Therefore, we examined employee perceptions of telework on various life and career aspects, distinguishing between typical and extended telework during the COVID-19 crisis. To this end, we conducted a state-of-the-art web survey among Flemish employees. Notwithstanding this exceptional time of sudden, obligatory and high-intensity telework, our respondents mainly attribute positive characteristics to teleworking, such as increased efficiency and a lower risk of burnout. The results also suggest that the overwhelming majority of the surveyed employees believe that teleworking (85%) and digital conferencing (81%) are here to stay. In contrast, some fear that telework diminishes their promotion opportunities and weakens ties with their colleagues and employer.

JEL Classification: J22, J28, D24, I10, J15, J24

Keywords: COVID-19, telework, videoconferencing, career

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1. Introduction

In the popular media, there have been many references to the potentially disruptive medium- and long-term impacts of the COVID-19 crisis on the careers of citizens from Organization for Economic Cooperation and Development (OECD) countries (e.g. Hinchliffe, 2020; Kelly, 2020; Makortoff, 2020; Reidy, 2020; Rosenthal, 2020). In this respect, there is the fear that an economic crisis, as a consequence of the current health crisis, will serve as an intermediary factor (Atkeson, 2020; ILO, 2020; McKibbin & Fernando, 2020; OECD, 2020). It is expected that this economic crisis will have predominantly negative effects, such as declining economic growth, disintegrating supply chains and deteriorating employment prospects (BBC, 2020; Financial Times, 2020; OECD, 2020; Tan, 2020; Tappe & Kurtz, 2020; Vermogen & Vervenne, 2020). Nonetheless, opportunities may also arise. For instance, the upcoming crisis could allow for the emergence of a greener economy or promote a boost in online communication and its supporting technologies (Cox & Piccolo, 2020; Henriques, 2020; Henschel & Cross, 2020; Politico Magazine, 2020). Along with flourishing online communication (technologies), some have also suggested that COVID-19 could be the basis for a breakthrough in telework (De Preter, 2020; Knutson, 2020).

However, it is unclear whether this belief in a structural breakthrough in teleworking exists only in the minds of journalists because of the limited, or asymmetrical, information they have access to, or whether it is shared by a wider proportion of the working population. Moreover, it is unclear to what extent the (i) broader population relates (increased) telework to (un)beneficial outcomes in various life and career outcomes and (ii) whether these perceptions vary by sociodemographic or job characteristics. In response to this, in the current study, we present data on these issues gathered from a panel of Flemish employees, representative with respect to age, gender and education level. The following research questions are answered.

Research question 1a (RQ1a): How do employees perceive the impact of telework, in general, on other career aspects?

Research question 1b (RQ1b): Are these perceptions heterogeneous by sociodemographic and job characteristics?

Research question 2a (RQ2a): How do employees perceive the impact of extended telework during the COVID-19 crisis on various life and career aspects?

Research question 2b (RQ2b): Are these perceptions heterogeneous by sociodemographic and job characteristics?

Research question 3a (RQ3a): To what extent has the COVID-19 crisis impacted employees' personal views on telework and digital meetings?

Research question 3b (RQ3b): Are these perceptions heterogeneous by sociodemographic and job characteristics?

By answering these questions, we not only contribute to the scientific literature on the (expected) socioeconomic consequences of the COVID-19 crisis (Atkeson, 2020; Baert, Lippens, Moens, Sterkens, & Weytjens, 2020; Evenett, 2020; McKibbin & Fernando, 2020), but also to the scientific literature on telework and, more specifically, (i) the evaluation of telework by employees and (ii) the (objective and perceived) career consequences of telework (Aguilera, Lethiais, Rallet, & Proulhac, 2016; Allen & Shockley, 2009; Charalampous, Grant, Tramontano, & Michailidis, 2019; Gajendran & Harrison, 2007; Redman, Snape, & Ashurst, 2009; Sardeshmukh, Sharma, & Golden, 2012).

2. Data

2.1. Main items

We analysed the responses of a sample of Flemish employees (see below) as part of a broader COVID-19-related survey (for analysis of the other parts of this survey, please refer to Baert et al., 2020). With respect to answering the research questions posed in the present study, three sets of items were submitted to the respondents; a complete list of item labels and statements can be found in Appendix A.

First, for RQ1a and RQ1b, all respondents were asked to evaluate telework and its perceived career consequences in general, independent of how the COVID-19 crisis affected their current telework arrangements. Each of the ten items concerning general career

consequences of telework featured in our survey was derived from meta-analyses or reviews on the consequences of telework (Charalampous et al., 2019; Gajendran & Harrison, 2007; Redman et al., 2009). More concretely, the items related to the following, frequently occurring themes in the telework literature: social isolation (item ‘my relationship with my colleagues’); professional isolation (‘my chances of promotion’ and ‘my professional development’); performance (‘my efficiency in performing tasks’ and ‘my concentration during work’); work-life balance (‘my work-life balance’); organisational attitudes (‘my overall satisfaction with my job’ and ‘my feeling of connectedness with my employer’); and other consequences of telework related to well-being (‘minimising my work-related stress’ and ‘minimising my chances of burnout’). This resulted in a combined list of both proximal outcomes (work-life balance and relationship with colleagues) and distal outcomes of telework (the remaining items), in line with the framework of Gajendran and Harrison (2007). The panel members were asked to evaluate these items on a five-point Likert scale, ranging from ‘a certainly negative effect’ (1) to ‘a certainly positive effect’ (5).

Second, relating to RQ2a and RQ2b, active employees who were confronted with increased teleworking due to the COVID-19 crisis at the moment of the survey were asked to evaluate statements regarding this situation of extended teleworking on a five-point Likert scale, ranging from ‘completely disagree’ (1) to ‘completely agree’ (5). We started by surveying the respondents about their general satisfaction with the extended teleworking arrangement. Then, we surveyed them on the potential negative side effects due to increased teleworking because of the COVID-19 crisis: (i) family or professional conflicts; (ii) disturbances by roommates; and (iii) difficulties in combining different means of communication. As increased teleworking blurs the boundaries between work and family roles (Charalampous et al., 2019; Gajendran & Harrison, 2007), we would expect more conflicts and disturbances involving housemates, especially among those employees who are inexperienced in teleworking. According to Gajendran and Harrison (2007), the beneficial impact of teleworking on work-family conflict and role stress largely depends on the learning curve associated with the telecommuting, with more experienced teleworkers associating it with having an increased beneficial impact. Next, guidance from the employer—a critical condition for successful teleworking (Allen & Shockley, 2009)—and the ease with which employees convinced their employer to offer telework arrangements in this exceptional situation of sudden and high-intensity telework were evaluated. Then, and in

line with additionally occurring themes in the telework literature (as outlined above), we included items on task efficiency, commitment, work-life balance, relationship with colleagues, stress management, burnout prevention and work concentration.

A third, and final, set of items included for answering RQ3a and RQ3b dealt with the extent to which the COVID-19 crisis had changed the respondents' views on teleworking and digital conferencing, and whether they believed that the level of teleworking and digital conferencing would be permanently increased as a result of this crisis. Our entire study sample (see below) was asked whether (i) their personal view on teleworking had become more positive as a consequence of the current crisis, (ii) whether they hoped to perform more telework in the future, and (iii) whether they believed telework would increase in prevalence in the future. The respondents also received similar questions about digital meetings. Said items were evaluated on a five-point Likert scale, ranging from 'completely disagree' (1) to 'completely agree' (5).

2.2. Survey construction

The overall survey construction was grounded in the seminal surveying handbooks of Bethlehem and Biffignandi (2012), Fowler (2014) and Tourangeau, Conrad, and Couper (2013). The following paragraphs illustrate the important decisions we made to optimise the reliability and validity of the instrument. For a more thorough discussion of these concerns and of the institutional setting, please see Baert et al. (2020).

First, non-differentiation (participants responding randomly, simply out of fatigue; Bethlehem & Biffignandi, 2012) was counteracted by presenting a limited number of items at a time and by using comprehensible wording (e.g. no double-barrelled constructions; Lietz, 2010; McPherson & Mohr, 2005). In addition, following the advice of Weijters, Cabooter, and Schillewaert (2010), the items were scored using a fully-labelled five-point Likert scales, where the phrasing of the item allowed us to do that. To stimulate qualitative responses, we deliberately excluded the option 'I do not know' from the scales (Bethlehem & Biffignandi, 2012).

Second, next to conscientious item development, the data quality and survey completion rates were enhanced by introducing raffle prizes and displaying a progress

indicator, respectively (Görizt, 2006; Tourangeau et al., 2013).

Third, adhering to the standards of first-rate surveying practices, the measuring instrument underwent pilot testing amongst 55 respondents. Throughout the pilot testing, the respondents were structurally questioned on (i) the clarity of expectations, (ii) the wording and (iii) topics that had potentially been neglected.

Last, upon completing the data collection, data cleaning and sensitivity analyses were employed to further augment the quality of the response sets. The results remained robust after performing said analyses. Specifically, inattentive participants who failed to correctly answer a ‘trap’ question were not included in our basic sample (see below). Also, those participants with very short completion times (i.e. within 5% of the shortest survey duration) were removed from the final panel in the robustness analyses.

With respect to answering RQ1b, RQ2b and RQ3b, we also used all of the data from the part of the broader survey that addressed the sociodemographic and job characteristics of the respondents. This enabled us to more concretely assess the heterogeneity with regard to the respondents’ gender, age, migration background, education level, relationship status, number of resident children and other (extended) family members, province, degree of urbanisation of their residence, and health status (prior to the COVID-19 crisis, overall current status and having been infected by COVID-19), as well as their type of employment contract, the part-time (versus full-time) nature of this contract, their tenure (with the current employer and in the current job), their level of job satisfaction, four key characteristics relating to the design of their job (i.e. autonomy, dependency on others, interaction outside of the organisation and feedback from others), and their sector of employment.

2.3. Sampling

Ideally, the representativeness of our study sample would have been established by means of probability sampling, where all participants completed the survey—the latter being a condition that is often forgotten about (Bethlehem & Biffignandi, 2012; Fowler, 2014; Tourangeau et al., 2013). However, practical constraints, such as the requirement for sampling through national registers, after ethical approval and follow-up by the registry

office in cases of the non-response of participants, made us conclude that probability sampling was neither feasible nor desirable. Given the surging rates of telework and temporary unemployment, the scientific community and policymakers required immediate insights on how the working population was experiencing changes in their work situations.

Our study, based on web surveying, had several perks with respect to data collection. Compared to other methods (such as physical and telephonic interviews), web surveying allows data to be collected from a large sample. Here, 14,005 individuals filled in the survey. Finally, in our case, the sampling was not hampered by a common limitation of web surveys—namely, an under-coverage of the studied population—through the exclusion of individuals not connected to the internet, in the sense that the teleworkers, by default, had internet access.

However, a substantial threat to the representativeness of our sample—as with nearly all web surveys—was self-selection (i.e. respondents themselves choosing whether they answer a call to participate or not). More concretely, self-selection is a peril to the representativeness of a sample when respondents differ systematically from non-responders in terms of the surveyed variables. To mitigate this threat, we applied a post-stratification strategy, as recommended by Bethlehem and Biffignandi (2012) and Tourangeau et al. (2013). That is, we wanted our sample to be representative, with respect to (i) gender, (ii) age and (iii) education level, of the population of Flemish employees under the age of 65 years. Specifically, we aimed for representativeness of this population using eight cells ('strata'), combining two levels of each of the auxiliary variables: males versus females; tertiary education versus no tertiary education; and being at least 50 years old or being younger. Therefore, we identified the stratum in the total sample of 14,005 respondents that was most underrepresented when compared to the 2019 population averages for Flemish employees under 65 years, which was female workers without tertiary education aged 50 years or older. All complete responses (with correct answers to our 'trap' question; see above) from this stratum were included in the basic sample for this stratum. For the other seven strata, respondents were randomly drawn based on their proportions in the population. Applying this post-stratification resulted in a basic sample of 3,821 individuals.

We excluded, from this basic sample, respondents whose jobs did not allow for

teleworking. More concretely, respondents who indicated that less than 10% of their work could potentially be done via telework were removed from the panel, which resulted in a study sample of 2,673 participants.

The items related to RQ2a and RQ2b (see above) were only submitted to individuals experiencing extended telework due to the COVID-19 crisis at the moment of the survey. This subsample comprised 1,895 individuals. Figure 1 summarises the sampling framework.

<Figure 1 about here>

2.4. Summary statistics

Table 1 contains the summary statistics concerning the personal and job characteristics of our study sample, and our subsample of individuals with extended telework resulting from the COVID-19 crisis. The scales we used are referred to in the notes of Table 1. As can be seen in this table, highly educated individuals and individuals active in education were strongly represented in the subsample of individuals with extended telework, while, compared to the full study sample, there were significantly fewer individuals active in the logistics and transport and technology sectors who experience increased telework.

<Table 1 about here>

3. Results

3.1. Perceived impact of telework in general on various career aspects

Figure 2 provides an overview of the panel's responses to the survey items relating to RQ1a and RQ1b. Table 2 summarises the results of a regression analysis in which these responses were classified according to the personal and job characteristics surveyed. More precisely, we performed linear regression analyses in which the standard errors were corrected for heteroscedasticity (White correction). Ordered logistic models and dummy specifications for the continuous explanatory variables included in the regression models led to the same insights. A complete overview of the numerical regression results for the first item (i.e.

perceived positive impact of teleworking on overall job satisfaction) is included in Table B1 in Appendix B.

<Figure 2 about here>

<Table 2 about here>

As can be seen in Figure 2 and Table 2, the panel members believe that telework has a strong positive effect in general. Almost two-thirds (65.7%) indicate that their overall satisfaction with their job increases with telework. Similarly, 64.6% think that telework improves their work-life balance, whilst about half of the respondents believe that telework helps to minimise both work-related stress (48.4%) and the chance of burnout (47.6%). The effects of telework on performance are also positively evaluated, with respondents asserting that telework improves their efficiency in performing tasks (56.3%) and increases their work concentration (50.7%). These positive effects of teleworking on job satisfaction, work-life balance, role stress, burnout and performance are in line with the findings of previous studies (Charalampous et al., 2019; Gajendran & Harrison, 2007; Redman et al., 2009).

These positive views on telework are particularly expressed by women. In this respect, our findings corroborate a growing body of evidence on telecommuting, such as the systematic review of Charalampous et al. (2019) and the meta-analysis of Gajendran and Harrison (2007). That is, women reportedly experience a smaller negative effect of telework on potential work-family conflicts and a greater increase in job performance compared to men. An underlying explanation might be found in traditional gender roles, which presumably give women more care responsibilities than men. As such, it could be more difficult for women to combine these responsibilities with job-related responsibilities due to school and childcare closures (Queisser, Adema, & Clarke, 2020). Telework can be a way to facilitate this combination.

Older respondents more often agree that telework has a positive effect on work-related stress and on their concentration. This might relate to the study of Aguilera et al. (2016), who found that telework is often associated with a quieter and less stressful work environment, which older respondents may benefit more from when it comes to stress management and concentration.

In addition, respondents who strongly depend on others in their job, as well as those who receive a lot of feedback, share these positive views less often. Indeed, when one's job is highly dependent on others, it is likely that coordination problems with colleagues due to teleworking occur more frequently. Such coordination problems can cause enhanced negative consequences for telework (Allen & Shockley, 2009). In turn, respondents who receive a lot of feedback, which is considered as an important aspect of job satisfaction and job performance (Anseels & Lievens, 2007; Stajkovic & Luthans, 2003), might fear receiving less feedback when teleworking. In this respect, previous research has indeed shown that reduced face-to-face interaction restricts the possibility of giving immediate feedback or praise (Hallowel, 1999; Sardeshmukh et al., 2012).

Even though teleworking is mostly thought of in a positive manner, there are some downsides with regard to career development, future prospects and the social aspects of not working in a regular office. Most notably, about a quarter of the panel members believe that telework decreases their chance of promotion (27.0%) and hampers their professional development (29.4%). Additionally, more than half of the respondents think that telework has a negative effective on their relationships with their colleagues (57.5%), while the sense of connectedness with their employer is lowered in the perception of about half (47.4%) of the panel members.

Again, these findings are in line with previous research. Charalampous et al. (2019) noted that increased telework can isolate employees, both socially and professionally. In addition, Redman et al. (2009) found that telework can reduce the support employees receive from their employer with regard to their personal and professional development. This is also reminiscent of the relationship that Moens et al. (2019) previously established between temporary contracts and loneliness at work.

Respondents who attained a tertiary level of education experience relatively more negative consequences from telework on promotion opportunities, professional development, commitment and relationships with colleagues, which is surprising because highly-skilled and autonomous workers are the most likely to telecommute (Aguilera et al., 2016). An explanation for this finding might be that these workers, being the most likely to telecommute, might already have been accustomed to the benefits of teleworking.

3.2. Perceived impact of extended telework during the COVID-19 crisis on various life and career aspects

The survey items relating to RQ2a and RQ2b are analysed by analogy with those discussed in the previous subsection. Figure 3 and Table 3 start off with evidence for a large majority of our subsample with extended telework being satisfied with the increase in teleworking (65.9%). This result is not surprising, given three complementary observations. First, notwithstanding the sudden onset of the COVID-19 crisis that forced employers to rapidly transition to telework without being able to prepare, more than half of the subsample feels well guided by their employer (53.2%), which is a critical condition for successful teleworking (Allen & Shockley, 2009). Second, the idea that the extended telework is beneficial, with regard to stress and burnout prevention, and to on-the-job concentration, holds for almost half of the employees with extended telework (45.7% reportedly experience less work-related stress, 44.7% note that they can concentrate better on their work, and 42.7% believe the extended telework decreases their chances of burnout in the near future). In addition, more than half (55.7%) feel that the extended telework has a positive effect on their work-life balance. Third, only a small share of the respondents with extended telework (17.3%) experience significant difficulties in combining different means of communication while teleworking.

<Figure 3 about here>

<Table 3 about here>

Beyond the professional benefits, the effects of the extended telework on non-career-related aspects are rather limited. About half of the employees with extended telework (57.2%) do not encounter additional conflicts with their family members as a result of the telework arrangements, nor are they more often disturbed by their family members (48.9%). In this context, we must note that the survey was conducted at the beginning of the COVID-19 crisis. However, the idea of reduced social interaction with their colleagues and employer are materialised, with almost two-thirds reporting a weaker bond with their colleagues (64.0%) and more than half feeling less connected with their employer (56.0%).

As for some items concerning general telework, the survey responses hint at a potential age difference. Older employees report many of the benefits more often, such as being able

to work more efficiently and having higher levels of concentration thanks to the extended telework. In addition, older employees reportedly experience significantly fewer conflicts with family members due to the extended telework, and are less often disturbed by them. Previous research has shown that older participants might be less accustomed to telework (Twenge & Campbell, 2008). Our results, however, show that their experiences with teleworking are evaluated very positively. This might be related to the fact that older people are at higher risk from COVID-19 (Kluge, 2020), and thus are more appreciative of the possibility of working from home.

Respondents with children are less satisfied with the extended telework. This is not surprising as, during the COVID-19 crisis, telework often has to be combined with taking care of the children (due to the closure of schools and daycare facilities), which is a challenging combination that does not occur in normal telework situations. Due to the COVID-19 crisis, the respondents suddenly have had to combine working from home with tending to their children.

Interestingly, the respondents with a migration background in our panel report stronger positive effects for (the extended) telework than employees without a migration background. More precisely, they report a stronger positive impact of telework in general on their relationships with their colleagues and employer (which ties in with the findings disclosed in subsection 3.1). Moreover, they experience fewer professional conflicts and experience higher levels of commitment towards their employer due to the extended telework, and also found it less difficult to convince their employer to allow them to telecommute during the COVID-19 crisis. Although this finding might equally relate to a selection problem, in the sense that a selective subset of persons with a migration background might have selected themselves for our sample, we put forward two potential reasons why employees with a migration background might fare better than others on these aspects. A first explanation is based on discrimination research that shows that jobs where interaction with colleagues and customers is prominent, ethnic minorities are more likely to be discriminated against in the selection process (Baert, Cockx, Gheyle, & Van Damme, 2015; Bodvarsson & Partridge, 2001; Boyd-Swan & Herbst, 2019; Combes, Decreuse, Laouénan, & Trannoy, 2016; Laouénan, 2017; McGinnity & Lunn, 2011). Under the assumption that teleworking, by definition, reduces physical, personal interaction (Kirk &

Belovics, 2006), the negative effects of the perceived discrimination may be reduced. A second explanation lies in the claim that ethnic salience—the extent to which one’s personally identifying characteristics and affiliations underscore one’s ethnicity (e.g. skin tone)—also contributes to increased discriminatory behaviour in a professional work context (Avery, Hernandez, & Hebl, 2004; Baert & De Pauw, 2014; Deros, Nguyen, & Ryan, 2009; Deros, Pepermans, & Ryan, 2017). Working from home could make one’s personal characteristics less conspicuous due to the barrier created by remoteness. Direct colleagues, for example, literally see each other less frequently (i.e. they have less face-to-face interaction; Sewell & Taskin, 2015; Tietze & Nadin, 2011). In these instances, ethnic cues are less noticeable, hence potentially diminishing the negative repercussions of discriminatory behaviour.

Similar to general telework in normal times, those respondents who are more dependent on others in their job encounter more negative consequences from extended telework due to the COVID-19 crisis. In particular, during this period of extended telework, they report more conflicts with colleagues and family, are more disturbed by roommates, and have a harder time combining the different means of communication available to them. This lower satisfaction with extended telework is also the case for respondents used to receiving a lot of feedback, as well as those used to a lot of interaction outside their organisation and those experiencing high levels of job autonomy. The latter has also previously been reported by Baltes, Briggs, Huff, Wright, and Neuman (1999) and Allen and Shockley (2009), who found that managers and professionals who experience a greater degree of autonomy in their jobs benefitted to a lesser extent from flexible work arrangements in terms of work-life balance because telework potentially did not greatly alter their job characteristics.

3.3. Perceived impact of the COVID-19 crisis on self-view of telework and digital meetings

The survey items relating to RQ3a and RQ3b are analysed by analogy with those discussed in the two previous subsections. Figure 4 and Table 4 illustrate how the positive beliefs and experiences with regard to increased telework extend to the correspondents’ beliefs about the future of telework and digital meetings. Almost two-thirds of the panel members foster

a more positive outlook on teleworking (52.0%) and organising digital meetings (50.8%) due to the COVID-19 crisis. These feelings translate into an increased desire to pursue more telework (62.7%) and to have more digital meetings (48.8%). A majority of the respondents believe that both telework (85.3%) and digital meetings (80.5%) will also occur more often in the future.

<Figure 4 about here>

<Table 4 about here>

Women, in particular, have a more positive view on telework thanks to the COVID-19 crisis and indicate the strongest desire to perform more telework in the future. In addition, respondents who experience a high level of autonomy report an increasingly positive view on telework relating to the COVID-19 crisis less often, and have less of a desire to telework more in the future. The latter is also the case for respondents who receive a lot of feedback in their job (the fear of a reduction in feedback, as explained above, might be related to this).

4. Conclusion

This article has provided insights into how a carefully composed sample of Flemish employees have experienced telework, both in general and in its extensive form due to the COVID-19 crisis, and how the COVID-19 crisis has affected their outlook on the future of teleworking and digital conferencing. In addition, we investigated how telework experiences and corresponding future outlooks are heterogeneous by personal and job characteristics. Thereby, we have not only contributed to the scientific literature on the (expected) socioeconomic consequences of the COVID-19 crisis, but also to the overall scientific literature on telework.

To the satisfaction of most of the respondents (two-thirds), Flemish workers foresee the COVID-19 crisis as making teleworking (85%) and digital conferencing (81%) much more common in the future, at least in Belgium. However, those with resident children are less satisfied with the increased teleworking. Following the same trend, more than one in five

experiencing increased time spent teleworking (during the COVID-19 crisis) report more conflicts with their housemates.

The perceived effects of the increased teleworking on other facets of the respondents' personal and professional lives are largely in line with the findings of previous studies. For example, many positive characteristics (e.g. increased efficiency and better work-life balance) have been attributed to teleworking, while, at the same time, potentially negative impacts on promotion opportunities and work relationships have been underlined.

On the other hand, we found a number of associations between teleworking and other aspects of personal and professional life that, to the best of our knowledge, have not previously been documented in the scientific literature. First, even though many topics have been covered in the telework literature, its relation to burnout has not been adequately investigated. Sardeshmukh et al. (2012) noted that burnout research has often focused on traditional workers, but that studies have been slow to extend their interest to teleworkers. Our study has aided in enriching the research on this topic by disclosing the feelings of employees on burnout prevention through teleworking. Second, we found that the respondents with a migration background report stronger positive effects of extended teleworking in certain areas (e.g. less professional conflicts and higher commitment to their employer) than employees without a migration background. As discussed, this finding is consistent with empirical research on ethnic labour market discrimination, in terms of being less apparent when physical contact with customers and co-workers is lessened. We recommend that future studies, using different research designs, examine whether these associations are robust and actually reveal objective, causal mechanisms.

Compliance with ethical standards

The authors declare that they have no conflicts of interest.

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Appendix A: Survey items concerning outcome variables

A.1. Perceived impact of telework in general on various career aspects

The following statements are about your general view of teleworking (and therefore not specifically about the increased teleworking you may currently be experiencing). Do you think that telework in general has (or would have) a positive, negative or neutral effect on the following characteristics of your working life? Scale: certainly negative effect (1); rather negative effect (2); neither positive nor negative effect (3); rather positive effect (4); certainly positive effect (5).

(Overall job satisfaction) My overall satisfaction with my job.

(Promotion opportunities) My chances of promotion.

(Professional development) My professional development.

(Task efficiency) My efficiency in performing tasks.

(Commitment to employer) My feeling of connectedness with my employer.

(Work-life balance) My work-life balance.

(Relationship with colleagues) My relationship with my colleagues.

(Stress management) Minimise my work-related stress.

(Burnout prevention) Minimise my chances of burnout.

(Work concentration) My concentration during work.

A.2. Perceived impact of extended telework during the COVID-19 crisis on various life and career aspects

The following statements are about your experience with increased teleworking due to the current COVID-19 crisis. Please indicate to what extent you agree with the statements on a scale from 'completely disagree' (1) to 'completely agree' (5).

(Happy with extended telework) I am globally satisfied that I am working more at home because of the corona crisis.

(More family conflicts related to extended telework) I have more conflicts with my family because I work more at home because of the corona crisis.

(More professional conflicts related to extended telework) I have more professional conflicts (e.g. with supervisor or colleagues) because I work more at home because of the corona crisis.

(Often disturbed by roommates during extended telework) I am often disturbed by family members during extended homework because of the corona crisis.

(Difficult to combine different means of communication during extended telework) I find it difficult to combine different means of communication (such as phone, e-mail and Skype) during extended homework due to the corona crisis.

(Well guided by my employer during extended telework) I feel well guided by my employer (or supervisor) during the extended homeworking due to the corona crisis.

(Difficult to convince employer to introduce extended telework) It was hard to persuade my employer to allow me to participate in extended telework.

(Higher task efficiency related to extended telework) I can do my job more efficiently during the extended homework because of the corona crisis.

(Higher commitment to employer related to extended telework) I feel more connected to my employer due to the extended homework because of the corona crisis.

(Better work-life balance related to extended telework) I am experiencing a better work-life balance due to the extended homework because of the corona crisis.

(Better relationship with colleagues related to extended telework) I feel a stronger bond with my colleagues due to the extended homework because of the corona crisis.

(Better stress management related to extended telework) I experience less work-related stress due to the extended homework because of the corona crisis.

(Better burnout prevention related to extended telework) I think the extended homework caused by the corona crisis is reducing my chances of burnout in the near future.

(Higher work concentration related to extended telework) I experience better concentration at work due to the extended homework because of the corona crisis.

A.3. Perceived impact of the COVID-19 crisis on self-view of telework and digital meetings

The following statements deal with the extent to which (i) the current corona crisis has changed your view of teleworking and digital conferencing and (ii) you think that teleworking and digital conferencing in general in our country will be boosted by the current corona crisis. Please indicate the extent to which you agree with the statements, on a scale from 'completely disagree' (1) to 'completely agree' (5).

(More positive self-view of teleworking) Because of the current corona crisis, I now look more positively on teleworking.

(Hope for more telework in the future) Because of the current corona crisis, I hope to be able to do more telework in the future.

(Believe in overall more teleworking in country in future) Because of the current corona crisis, much more telework will be done in our country in the future.

(More positive self-view on digital meetings) Because of the current corona crisis, I now look more positively on digital meetings.

(Hope for more digital meetings in the future) Because of the current corona crisis, I hope that in the future more of my professional meetings will be held digitally.

(Believe in overall more digital meetings in the country in future) Because of the current corona crisis, many more digital meetings will be held in our country in the future.

Appendix B: Additional tables

<Table B1 about here>

Figure 1. Study sample and subsample

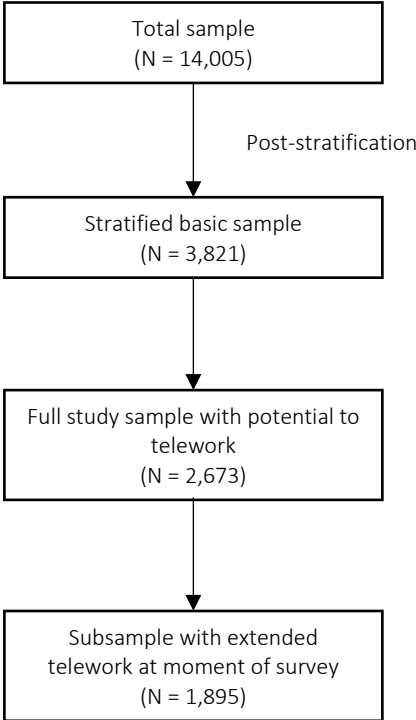


Figure 2. Perceived impact of telework in general on various career aspects: Answers given (N = 2,673)

Do you think that telework in general has (or would have) a positive, negative or neutral effect on the following characteristics of your working life?

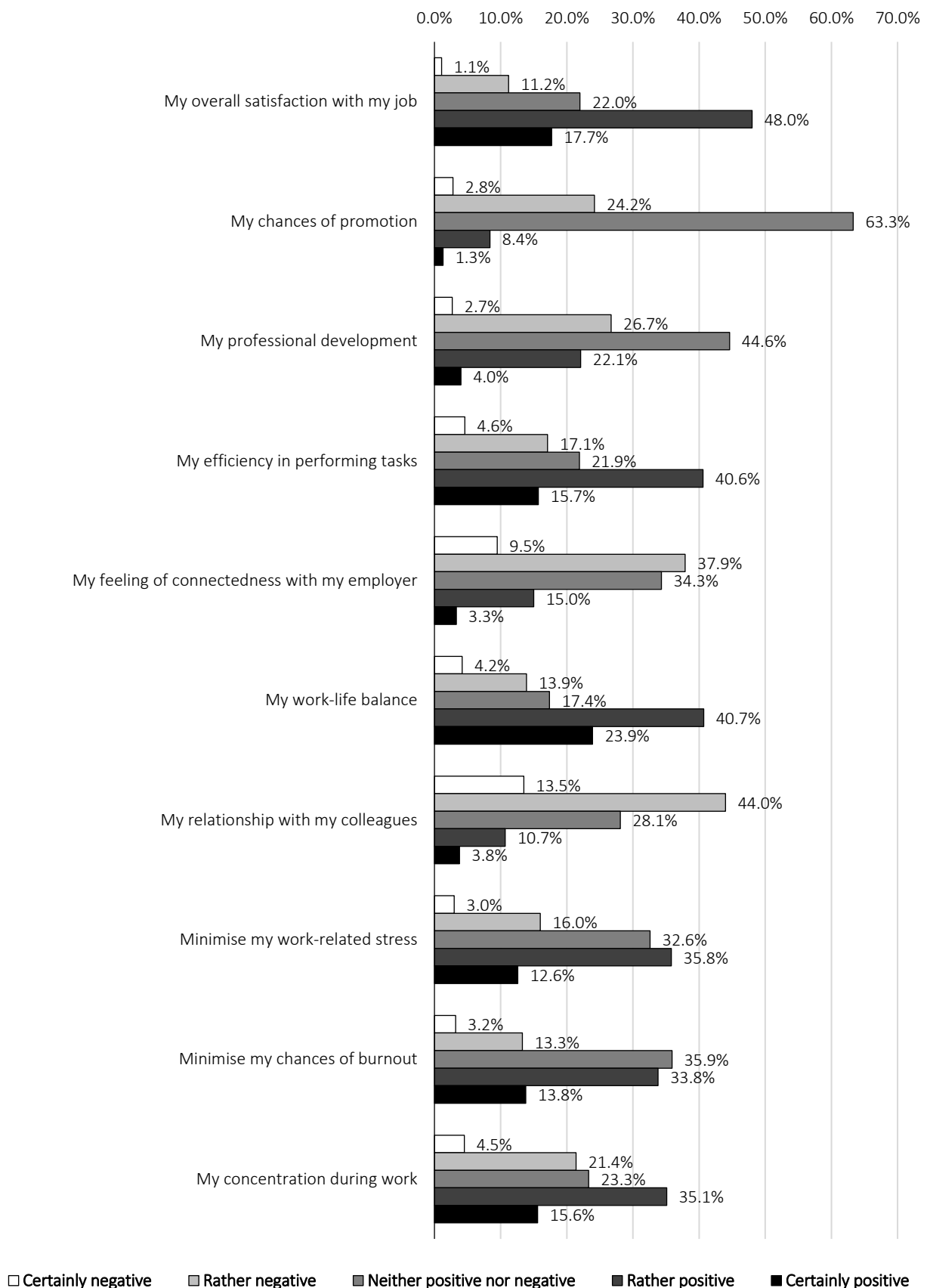


Figure 3. Perceived impact of extended telework during the COVID-19 crisis on various life and career aspects: Answers given (N = 1,895)

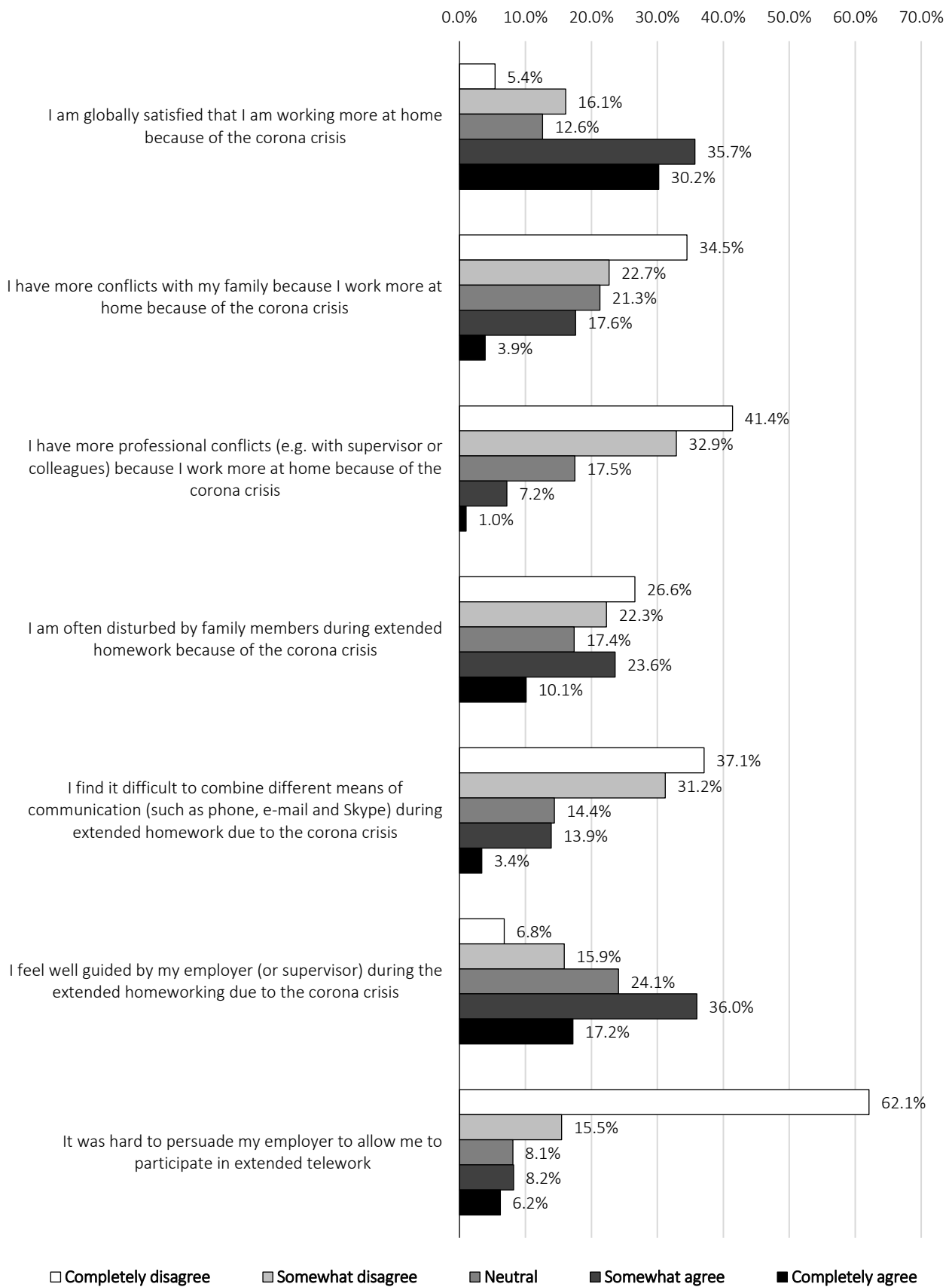


Figure 3 (cont'd). Perceived impact of extended telework during the COVID-19 crisis on various life and career aspects: Answers given (N = 1,895)

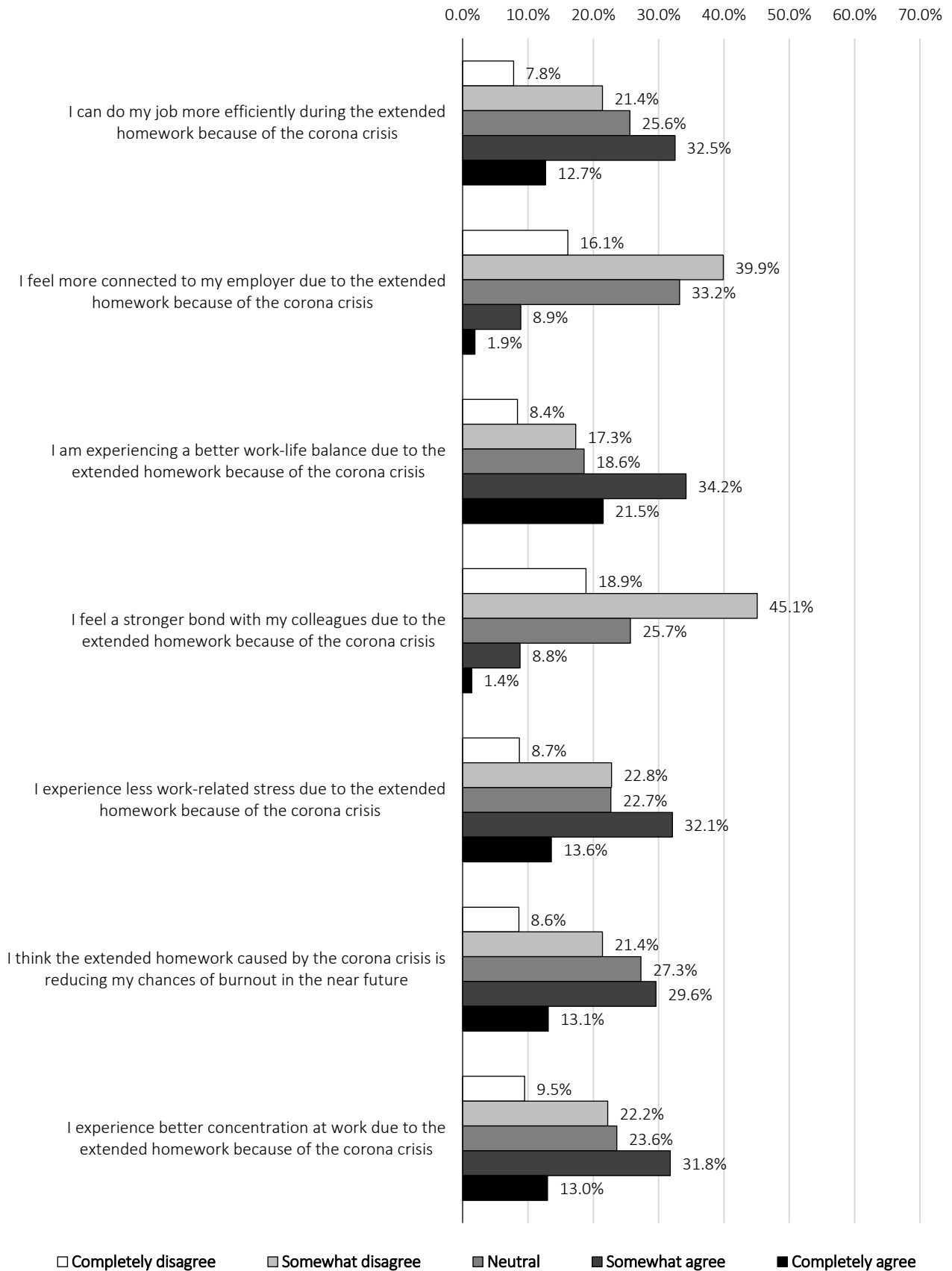


Figure 4. Perceived impact of the COVID-19 crisis on self-view of telework and digital meetings: Answers given (N = 2673)

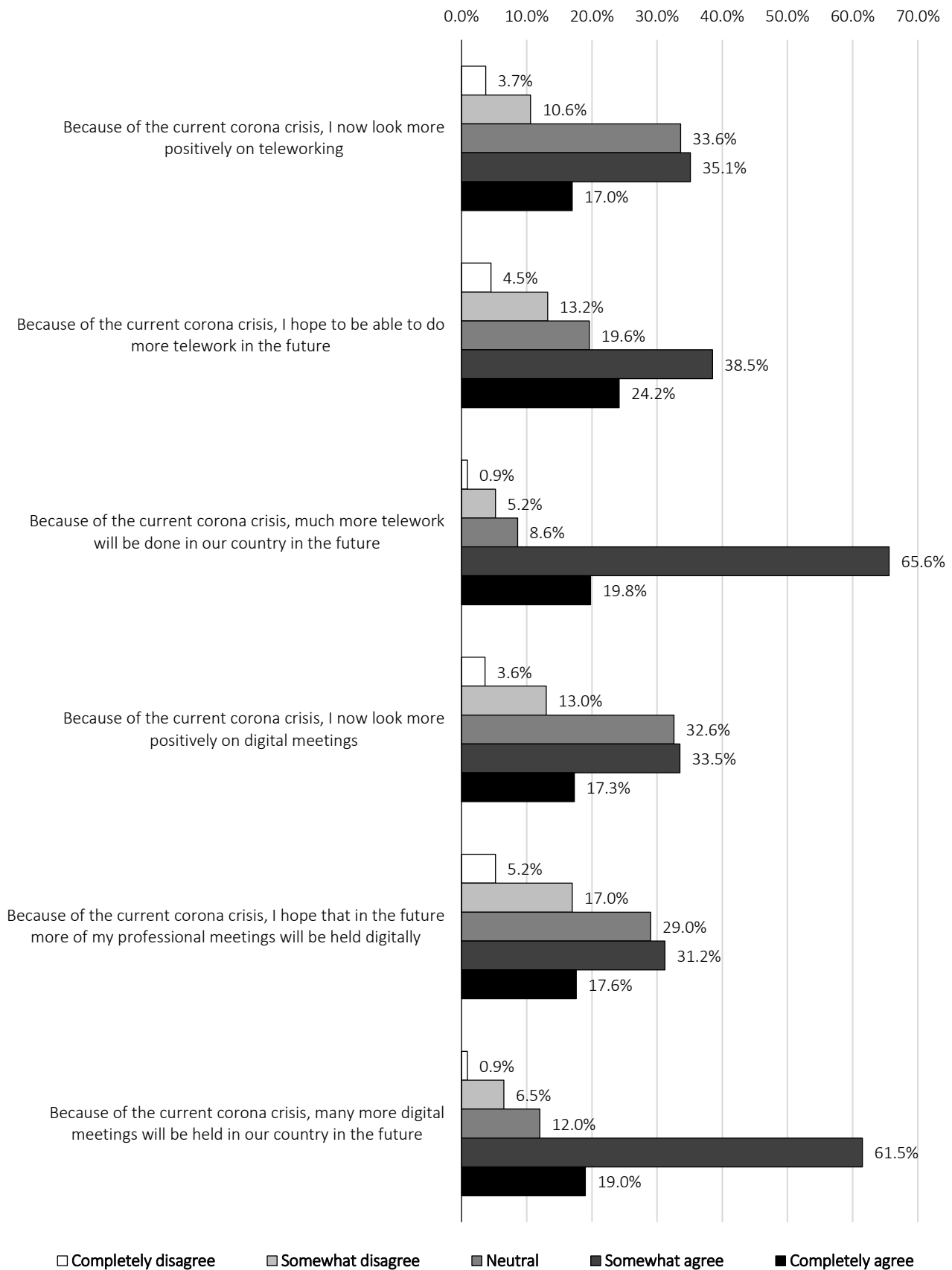


Table 1. Summary statistics

	Full study sample (N = 2,673)	Subsample: Temporarily extended telework (N = 1,895)
Female	0.510 (-)	0.516 (-)
Age	41.127 (10.665)	41.059 (10.576)
Migration background	0.026 (-)	0.028 (-)
Tertiary education	0.573 (-)	0.654 (-)
Single	0.192 (-)	0.183 (-)
In a relationship but not cohabiting	0.070 (-)	0.068 (-)
In a relationship and cohabiting	0.738 (-)	0.750 (-)
Number of resident children	0.923 (1.054)	0.945 (1.058)
Resident parents	0.067 (-)	0.062 (-)
Resident family members (other than parents)	0.035 (-)	0.032 (-)
Resident others (not family)	0.022 (-)	0.021 (-)
Province of Antwerp	0.273 (-)	0.274 (-)
Province of West Flanders	0.168 (-)	0.146 (-)
Province of East Flanders	0.318 (-)	0.325 (-)
Province of Limburg	0.065 (-)	0.061 (-)
Province of Flemish Brabant	0.175 (-)	0.193 (-)
Living in the countryside or rural area	0.364 (-)	0.372 (-)
Living in the centre of a village	0.255 (-)	0.240 (-)
Living in the suburbs of a city	0.224 (-)	0.227 (-)
Living in the centre of a city	0.157 (-)	0.161 (-)
Health before the COVID-19 crisis (scale)	4.138 (0.758)	4.147 (0.761)
Current health (scale)	3.943 (0.843)	3.976 (0.823)
Never been infected by COVID-19 (definitely or likely)	0.721 (-)	0.732 (-)
Uncertain about having been infected by COVID-19	0.207 (-)	0.195 (-)
Infected by COVID-19 at the moment (definitely or likely)	0.038 (-)	0.038 (-)
Infected by COVID-19 in the recent past (definitely or likely)	0.034 (-)	0.035 (-)
Employed on a temporary contract in the private sector	0.027 (-)	0.020 (-)
Employed on a permanent contract in the private sector	0.779 (-)	0.744 (-)
Employed on a regular contract in the public sector	0.086 (-)	0.103 (-)
Employed on a permanent appointment in the public sector	0.108 (-)	0.133 (-)
Part-time contract	0.150 (-)	0.144 (-)
Tenure with current employer (scale)	2.847 (1.427)	2.878 (1.418)
Tenure in current job (scale)	2.304 (1.255)	2.284 (1.234)
Satisfied with job (scale)	4.001 (0.906)	4.031 (0.899)
Autonomous in job (scale)	4.043 (1.011)	4.125 (0.949)
Dependent on others in job (scale)	3.159 (1.084)	3.136 (1.067)
Interaction outside of the organisation in job (scale)	3.632 (1.325)	3.576 (1.331)
Feedback from others in job (scale)	3.113 (1.147)	3.147 (1.114)

Sector: Purchasing	0.015 (-)	0.015 (-)
Sector: Administration	0.086 (-)	0.073 (-)
Sector: Construction	0.028 (-)	0.022 (-)
Sector: Communication	0.022 (-)	0.028 (-)
Sector: Creative	0.009 (-)	0.006 (-)
Sector: Provision of services	0.077 (-)	0.080 (-)
Sector: Financial	0.069 (-)	0.084 (-)
Sector: Health	0.037 (-)	0.026 (-)
Sector: Catering and tourism	0.019 (-)	0.004 (-)
Sector: Human Resources	0.061 (-)	0.068 (-)
Sector: ICT	0.102 (-)	0.129 (-)
Sector: Legal	0.019 (-)	0.024 (-)
Sector: Agriculture and horticulture	0.001 (-)	0.001 (-)
Sector: Logistics and transport	0.055 (-)	0.047 (-)
Sector: Management	0.056 (-)	0.060 (-)
Sector: Marketing	0.024 (-)	0.025 (-)
Sector: Maintenance	0.005 (-)	0.003 (-)
Sector: Education	0.048 (-)	0.063 (-)
Sector: Research and development	0.031 (-)	0.037 (-)
Sector: Government	0.056 (-)	0.069 (-)
Sector: Production	0.023 (-)	0.019 (-)
Sector: Technology	0.031 (-)	0.024 (-)
Sector: Sales	0.085 (-)	0.058 (-)
Sector: Other	0.040 (-)	0.035 (-)
Temporarily unemployed	0.145 (-)	0.000 (-)
% of work potentially done via telework	61.175 (28.073)	67.836 (24.907)
Temporarily extended telework	0.709 (-)	1.000 (-)

Notes. No standard deviations are presented for binary variables. The levels (and values) for the health scales are: very bad (1); somewhat bad (2); neither bad nor good (3); somewhat good (4); and very good (5). The levels for the tenure scales are: less than 2 years (1); between 2 and 5 years (2); between 6 and 10 years (3); between 11 and 20 years (4); and more than 20 years (5). The levels for the job scales are: completely disagree (1); somewhat disagree (2); neutral (3); somewhat agree (4); and completely agree (5). The operationalisation of these variables is based on Amez, Vujić, Soffers, and Baert (in press), Baert, Verhaest, Vermeir, and Omeij (2015), Baert, Vujić, Amez, Claeskens, Daman, Maeckelberghe, Omeij, & De Marez (2020), Moens, Baert, Verhofstadt, and Van Ootegem (2019) and Morgeson and Humphrey (2006).

Table 2. Perceived impact of telework in general on various career aspects: Regression results (full study sample; N = 2,673)

Aspect	% perceiving positive impact on aspect	Significantly more pronounced if ...	Significantly less pronounced if ...
Overall job satisfaction	65.7%	Province of East Flanders; better current health; longer tenure with current employer; more satisfied with job; sector is human resources or agriculture and horticulture; temporarily unemployed; higher % of work potentially done via telework; temporarily extended telework.	Living in the centre of a city; better health before COVID-19 crisis.
Promotion opportunities	9.7%	Uncertain about having been infected by COVID-19; more satisfied with job; more autonomous in job; more feedback from others in job; sector is agriculture and horticulture; higher % of work potentially done via telework.	Tertiary education; province of West Flanders; province of East Flanders; sector is communication, management or marketing.
Professional development	26.1%	Better current health; uncertain about having been infected by COVID-19; more satisfied with job; sector is agriculture and horticulture; higher % of work potentially done via telework.	Tertiary education; better health before COVID-19 crisis; sector is communication; temporarily extended telework.
Task efficiency	56.3%	Female; better current health; uncertain about having been infected by COVID-19; longer tenure with current employer; sector is human resources, agriculture and horticulture or marketing; temporarily unemployed; higher % of work potentially done via telework.	Tertiary education; better health before COVID-19 crisis; part-time contract.
Commitment to employer	18.4%	Migration background; better current health; sector is agriculture and horticulture; higher % of work potentially done via telework.	Tertiary education; better health before COVID-19 crisis.
Work-life balance	64.6%	In a relationship and cohabiting; province of East Flanders; better current health; uncertain about having been infected by COVID-19 or infected by COVID-19 for the moment; sector is agriculture and horticulture; temporarily unemployed; higher % of work potentially done via telework; temporarily extended telework.	Living in the centre of a city; more dependent on others in job; more feedback from others in job.
Relationship with colleagues	14.4%	Female; migration background; higher number of resident children; better current health; uncertain about having been infected by COVID-19; sector is maintenance; higher % of work potentially done via telework.	Tertiary education; better health before COVID-19 crisis; longer tenure with current employer; more satisfied with job; temporarily extended telework.
Stress management	48.4%	Better current health; temporarily unemployed; higher % of work potentially done via telework.	Higher number of resident children; better health before COVID-19 crisis; more dependent on others in job; more feedback from others in job; sector is education.
Burnout prevention	47.6%	Better current health; temporarily unemployed; higher % of work potentially done via telework.	Better health before COVID-19 crisis; more dependent on others in job; more feedback from others in job.
Work concentration	50.7%	Female; higher age; better current health; uncertain about having been infected by COVID-19; more interaction outside organisation in job; temporarily unemployed; higher % of work potentially done via telework.	Living in the centre of a city; better health before COVID-19 crisis; part-time contract; more feedback from others in job.

Notes. The proportion 'perceiving positive impact' corresponds to the sum of those who indicated 'certainly positive effect' and 'rather positive effect' to the related survey item (see Appendix A). The relationship to the personal and job characteristics was analysed by means of a linear regression analysis with heteroscedasticity-robust standard errors (in which all characteristics mentioned in Table 1 were included). The significance level was set as $p < 0.05$.

Table 3. Perceived impact of extended telework during the COVID-19 crisis on various life and career aspects: Regression results (subsample with extended telework at moment of survey; N = 1,895)

Aspect	% perceiving impact on aspect	Significantly more pronounced if ...	Significantly less pronounced if ...
Happy with extended telework	65.9%	Better current health; part-time contract; sector is creative or health; higher % of work potentially done via telework.	Higher number of resident children; living in the centre of a village or living in the centre of a city; better health before COVID-19 crisis; more satisfied with job; more autonomous in job, more dependent on others in job; more interaction outside organisation in job; more feedback from others in job.
More family conflicts related to extended telework	21.5%	Higher number of resident children; better health before COVID-19 crisis; more dependent on others in job.	Higher age; province of Limburg; better current health; uncertain about having been infected by COVID-19; higher % of work potentially done via telework.
More professional conflicts related to extended telework	8.2%	Resident family members (other than parents); resident others (no family); better health before COVID-19 crisis; more dependent on others in job; sector is catering and tourism.	Migration background; resident parents; better current health; more satisfied with job; more feedback from others in job; higher % of work potentially done via telework.
Often disturbed by roommates during extended telework	33.7%	In a relationship and cohabiting; higher number of resident children; more dependent on others in job.	Higher age; better current health; sector is agriculture and horticulture; higher % of work potentially done via telework.
Difficult to combine different means of communication during extended telework	17.3%	Higher number of resident children; province of West Flanders; longer tenure in current job; more dependent on others in job.	In a relationship and cohabiting; resident parents; better current health; longer tenure with current employer; more autonomous in job; more feedback from others in job; sector is ICT, research and development or sales; higher % of work potentially done via telework.
Well guided by my employer during extended telework	53.2%	Tertiary education; living in the centre of a village; better current health; more satisfied with job; more feedback from others in job; sector is agriculture and horticulture; higher % of work potentially done via telework.	Sector is creative.
Difficult to convince employer to introduce extended telework	14.4%	Province of West Flanders; infected by COVID-19 for the moment (probably); sector is maintenance.	Higher age; migration background; tertiary education; more satisfied with job; more autonomous in job; more feedback from others in job.

Higher task efficiency related to extended telework	45.2%	Higher age; province of East Flanders; better current health; higher % of work potentially done via telework.	Better health before COVID-19 crisis; more feedback from others in job; sector is education.
Higher commitment to employer related to extended telework	10.8%	Higher age; migration background; better current health; higher % of work potentially done via telework.	Living in the centre of a village; better health before COVID-19 crisis.
Better work-life balance related to extended telework	55.7%	Province of Limburg; better current health; uncertain about having been infected by COVID-19, infected by COVID-19 for the moment (probably); infected by COVID-19 in the recent past (probably); sector is human resources; higher % of work potentially done via telework.	Higher number of resident children; living in the centre of a city; better health before COVID-19 crisis; more autonomous in job; more feedback from others in job.
Better relationship with colleagues related to extended telework	10.2%	Higher age; province of East Flanders; better current health; higher % of work potentially done via telework.	Better health before COVID-19 crisis; more satisfied with job.
Better stress management related to extended telework	45.7%	Better current health; uncertain about having been infected by COVID-19, infected by COVID-19 for the moment (probably) or infected by COVID-19 in the recent past (probably); higher % of work potentially done via telework.	Higher number of resident children; better health before COVID-19 crisis; more dependent on others in job; more feedback from others in job.
Better burnout prevention related to extended telework	42.7%	Higher age; better current health; infected by COVID-19 for the moment (probably) or infected by COVID-19 in the recent past (probably); higher % of work potentially done via telework.	Higher number of resident children; better health before COVID-19 crisis; more feedback from others in job.
Higher work concentration related to extended telework	44.7%	Higher age; better current health; infected by COVID-19 for the moment (probably); employed in public sector; higher % of work potentially done via telework.	Higher number of resident children; better health before COVID-19 crisis; more dependent on others in job; more feedback from others in job; sector is education.

Notes. The proportion 'perceiving impact' corresponds to the sum of those who indicated 'completely agree' and 'somewhat agree' to the related survey item (see Appendix A). The relationship to the personal and job characteristics was analysed by means of a linear regression analysis with heteroscedasticity-robust standard errors (in which all characteristics mentioned in Table 1 were included). The significance level was set as $p < 0.05$.

Table 4. Perceived impact of the COVID-19 crisis on self-view of telework and digital meetings: Regression results (full study sample; N = 2,673)

View	% perceiving impact	Significantly more pronounced if ...	Significantly less pronounced if ...
More positive self-view of teleworking	52.0%	Female; in a relationship but not cohabiting; better current health; infected by COVID-19 for the moment (probably); temporarily unemployed; higher % of work potentially done via telework.	Tertiary education; more autonomous in job; sector is ICT or legal.
Hope for more telework in the future	62.7%	Female; in a relationship but not cohabiting or in a relationship and cohabiting; uncertain about having been infected by COVID-19; sector is creative, agriculture and horticulture or marketing; temporarily unemployed; higher % of work potentially done via telework; temporarily extended telework.	Tertiary education; living in the centre of a city; more satisfied with job; more autonomous in job; more feedback from others in job.
Believe in overall more teleworking in country in future	85.3%	Resident family members (other than parents); better health for the moment; employed on permanent appointment in public sector; part-time contract; more feedback from others in job; temporarily extended telework.	
More positive self-view on digital meetings	50.8%	Better current health; sector is agriculture and horticulture; higher % of work potentially done via telework.	
Hope for more digital meetings in the future	48.8%	Higher number of resident children; province of Limburg; sector is human resources, agriculture and horticulture, management, marketing, education or sales; higher % of work potentially done via telework.	
Believe in overall more digital meetings in the country in future	80.5%	Tertiary education; resident family members (other than parents); part-time contract; more feedback from others in job.	Longer tenure in current job.

Notes. The proportion 'perceiving impact' corresponds to the sum of those who indicated 'completely agree' and 'somewhat agree' to the related survey item (see Appendix A). The relationship to the personal and job characteristics was analysed by means of a linear regression analysis with heteroscedasticity-robust standard errors (in which all characteristics mentioned in Table 1 were included). The significance level was set as $p < 0.05$.

Table B1. Perceived positive impact of teleworking on overall job satisfaction: Full regression estimates

	Linear regression analysis	Ordered logistic regression analysis
Female	0.058 (0.040)	0.115 (0.086)
Age	-0.002 (0.002)	-0.006 (0.005)
Migration background	-0.080 (0.125)	-0.120 (0.275)
Tertiary education	-0.047 (0.039)	-0.102 (0.082)
Single (reference)		
In a relationship but not cohabiting	0.072 (0.079)	0.153 (0.171)
In a relationship and cohabiting	0.007 (0.051)	-0.016 (0.106)
Number of resident children	0.010 (0.018)	0.027 (0.039)
Resident parents	-0.140 (0.096)	-0.300 (0.208)
Resident family members (other than parents)	0.095 (0.106)	0.128 (0.228)
Resident others (not family)	0.125 (0.119)	0.224 (0.236)
Province of Antwerp (reference)		
Province of West Flanders	-0.018 (0.055)	-0.022 (0.113)
Province of East Flanders	0.098** (0.045)	0.233** (0.096)
Province of Limburg	0.044 (0.076)	0.133 (0.160)
Province of Flemish Brabant	0.076 (0.054)	0.182 (0.115)
Living in the countryside or rural area (reference)		
Living in the centre of a village	-0.020 (0.045)	-0.048 (0.096)
Living in the suburbs of a city	-0.020 (0.047)	-0.051 (0.100)
Living in the centre of a city	-0.121** (0.057)	-0.234** (0.118)
Health before the COVID-19 crisis (scale)	-0.068** (0.034)	-0.157** (0.074)
Current health (scale)	0.090*** (0.032)	0.203*** (0.067)
Never been infected by COVID-19 (definitely or likely) (reference)		
Uncertain about having been infected by COVID-19	0.084* (0.043)	0.167* (0.091)
Infected by COVID-19 at the moment (definitely or likely)	0.081 (0.105)	0.224 (0.233)
Infected by COVID-19 in the recent past (definitely or likely)	0.148 (0.095)	0.309 (0.214)
Employed on a temporary contract in the private sector (reference)		
Employed on a permanent contract in the private sector	-0.069 (0.111)	-0.175 (0.239)
Employed on a regular contract in the public sector	-0.048 (0.127)	-0.120 (0.274)
Employed on a permanent appointment in the public sector	-0.080 (0.127)	-0.212 (0.273)
Part-time contract	-0.022 (0.051)	-0.056 (0.108)
Tenure with current employer (scale)	0.043** (0.020)	0.096** (0.042)
Tenure in current job (scale)	-0.038* (0.021)	-0.081* (0.045)
Satisfied with job (scale)	0.101*** (0.025)	0.227*** (0.054)
Autonomous in job (scale)	0.003 (0.019)	0.008 (0.041)
Dependent on others in job (scale)	-0.024 (0.017)	-0.046 (0.037)
Interaction outside of the organisation in job (scale)	0.018 (0.015)	0.040 (0.032)
Feedback from others in job (scale)	-0.015 (0.017)	-0.028 (0.038)
Sector: Purchasing	-0.101 (0.165)	-0.154 (0.339)
Sector: Administration	0.017 (0.098)	0.079 (0.202)
Sector: Construction	0.143 (0.129)	0.428 (0.263)
Sector: Communication	-0.117 (0.155)	-0.155 (0.342)
Sector: Creative	0.109 (0.199)	0.298 (0.414)
Sector: Provision of services	0.029 (0.099)	0.129 (0.208)
Sector: Financial	0.065 (0.102)	0.225 (0.221)

Sector: Health	-0.088 (0.129)	0.011 (0.264)
Sector: Catering and tourism	-0.201 (0.155)	-0.276 (0.295)
Sector: Human Resources	0.237** (0.102)	0.592*** (0.223)
Sector: ICT	0.004 (0.099)	0.095 (0.213)
Sector: Legal	-0.076 (0.166)	0.045 (0.356)
Sector: Agriculture and horticulture	0.386*** (0.117)	0.740*** (0.237)
Sector: Logistics and transport	0.147 (0.110)	0.417* (0.230)
Sector: Management	0.047 (0.108)	0.183 (0.228)
Sector: Marketing	0.188 (0.134)	0.433 (0.303)
Sector: Maintenance	0.090 (0.179)	0.237 (0.344)
Sector: Education	-0.044 (0.127)	-0.001 (0.271)
Sector: Research and development	0.027 (0.130)	0.190 (0.274)
Sector: Government	0.191 (0.117)	0.467* (0.258)
Sector: Production	0.178 (0.138)	0.483* (0.283)
Sector: Technology	0.182 (0.126)	0.471* (0.268)
Sector: Sales	0.048 (0.100)	0.192 (0.212)
Sector: Other (reference)		
Temporarily unemployed	0.199*** (0.068)	0.422*** (0.136)
% of work potentially done via telework	0.006*** (0.001)	0.014*** (0.002)
Temporarily extended telework	0.184*** (0.057)	0.384*** (0.115)
N	2,673	2,673

Notes. The presented statistics are coefficient estimates and standard errors in parentheses based on a regression analysis with heteroscedasticity-robust standard errors. Intercepts and cut-off values are not presented. * (**) (***) indicates significance at the 10% (5%) ((1%)) level. The significance levels cannot be given an absolute interpretation due to potential multiple testing problems (false positives).