Professional Social Media Usage and Work Engagement: A Four-Wave Follow-Up Study of Finnish Professionals Before and During the COVID-19 Outbreak

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Abstract

Background: COVID-19 pandemic has changed work life profoundly and concerns of employees' mental well-being have risen. Organizations have taken rapid digital leaps and started to use new collaborative tools such as social media platforms overnight.

Objective: Our study investigated how professional social media usage has affected work engagement before and during the COVID-19 and the role of perceived social support, task resources and psychological distress as predictors and moderators of work engagement.

Methods: Nationally representative longitudinal survey data were collected in 2019–2020, and 965 respondents participated to all four surveys. Measures included work engagement (UWES-9), perceived social support and task resources (COPSOQ II) and psychological distress (GHQ-12). The data was analyzed using hybrid linear regression modeling.

Results: Work engagement remained stable and only decreased in autumn 2020. Within-person changes in social media communication at work, social support, task resources, and psychological distress were all associated with work engagement. The negative association between psychological distress and work engagement was stronger in autumn 2020 than before the COVID-19 outbreak.

Conclusions: COVID-19 puts pressure on mental health at work. Fostering social support and task resources at work are important in maintaining work engagement. Social media communication could help in sustaining supportive work environment. Clinical Trial: Not applicable

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Keywords: social media, work engagement, task resources, social support, psychological distress

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Introduction

The rapid spread of the COVID-19 pandemic has affected our lives and work profoundly [1,2].

COVID-19 pushed organizations to make a fast digital leap to remote work and thus challenged and cultivated employees' well-being [3,4]. In Europe, 37% of the employees began working remotely in March and April 2020, with Finland having the largest proportion of remote workers (59%) [3]. In 2019, prior to the COVID-19 pandemic, only 23% of Finns worked remotely from home or other locations regularly, and 14% did so occasionally; therefore, the leap has been enormous [5].

In remote work conditions during COVID-19, the use of digital tools and social media platforms at work for information and document creation, sharing and exchange and for video meetings and discussions have increased [6]. These tools are often used for both work purposes and nonwork purposes among colleagues and have been found to enhance ways of working, innovativeness, learning new skills, performance, social relationships and social support, organizational identification, job satisfaction, and work engagement [6,7,8,9,10,11]. However, there is currently lack of research concerning their role during the pandemic.

Work engagement, a key positive motivational state of well-being at work, is a comprehensive and enduring positive mental state that employees experience during their work and consists of three dimensions: vigor (i.e., high energy levels, mental resilience, and persistence), dedication (i.e., a sense of significance and pride), and absorption (i.e., deep concentration on work and challenges detaching from work) [12,13]. The work engagement of Finnish employees was in a good shape before the COVID-19 crisis: 63% experienced vigor, 64% experienced dedication, and 56% experienced absorption in their work often or always [5].

According to Job Demands – Resources (JD–R) model, work engagement is particularly driven by job resources, which are positive psychological, physical, social, and organizational characteristics of work, such as good organizational climate and social support from colleagues and supervisors that help employees to gain work goals and foster learning and personal growth [13,14]. Social support defined as emotional, informational, and instrumental support, which describes not only the functional importance of relationships, but also the quality of those relationships and social

belonging, can be a great reciprocal resource, for example, in coping stress and enhancing self-efficacy [15,16,17]. Engaged employees are more likely to be proactive and productive in their work [18,19]. Furthermore, autonomy, possibility to engage in meaningful work and opportunities to use strengths and experience at work are important ingredients for employee engagement [19,20,21].

Based on Conservation of Resources (COR) theory, people tend to obtain and protect valuable resources, and loss of resources has a significant role in the development of psychological stress [22]. Work engagement, as an energetic resource that employees may possess, should be a key priority in organizations, as it can increase life satisfaction and can prevent employees from psychological distress, depression, anxiety, sickness absenteeism, and burnout [23,24,25,26]. Furthermore, work engagement has been associated with healthy cardiac autonomic activity and less likelihood of disability pensions [27,28]. Notably, high levels of work engagement have also been associated with increased psychological distress in short term, although decreased psychological stress over time [29]. Larger in society, work engagement predicts less unemployment in general population [27].

COVID-19 along with increased digital and remote work has potentially transformed ways of working for good [30]. Prior literature indicates that in the digital work environment, employees appreciate the opportunity to influence their work and enjoy the freedom and flexibility to complete their tasks and thus experience agency and higher self-esteem [31]. Resources such as support from managers received in social media can prevent work related psychological distress [32,33]. Recent studies regarding COVID-19 pandemic demonstrate that personal resilience, organizational and social support can sustain employee well-being and prevent anxiety [34]. Low supervisor support can, in turn, predict lower well-being, including stress, exhaustion, and burnout [35]. Furthermore, a study of American adults demonstrated that psychological distress increased from 3.9% in 2018 to 13.6% in 2020 during the COVID-19 pandemic [36]. Indeed, employees in the medical field have reported increased psychological distress and decreased well-being due to heightened demands and

workloads [34,37].

According to COR theory [22] resource gains (such as supervisor support) in itself has only a modest effect on well-being, but instead acquire its saliency in the context of resource loss. Thus, prolonged COVID-19 pandemic can be considered a resource threat for employees. It can be argued that perceived social support and task resources are particularly important in autumn 2020 as the social distance policies have been in place since spring 2020 [1,2] and normal social interaction and working practices have been highly limited for prolonged time. Of the basic psychological needs, particularly relatedness (lack of social contacts) and competence (e.g., reduced possibilities to effectively bring about desired effects and outcomes) have suffered [38].

Social media communication at work has increased during COVID-19 [6] and prior evidence show that work related social media communication can enhance job resources such as social support and organizational identification and moreover work engagement [8]. However, previous studies also indicate that psychological distress is associated with decreased work engagement before [39] and during COVID-19 in spring 2020 [40]. So far little is known about the longitudinal connections between professional social media communication and work engagement or how professional social media communication has affected work engagement and employees' mental well-being during the COVID-19 pandemic.

This longitudinal study analyzed changes in Finnish employees' work engagement before and during the COVID-19 pandemic. Analysis focused investigating whether changes in social media communication at work, perceived social support, task resources, and psychological distress are related to changes in employee's work engagement, especially at a time of a prolonged pandemic. We proposed the following hypotheses.

Hypothesis 1: Increased social media communication predicts an increase in work engagement (H1).

Hypothesis 2: Increased perceived social support and task resources at work predict an

increase in work engagement (H2).

Hypothesis 3: Increased psychological distress predicts decreased work engagement (H3).

Hypotheses 4 a, b & c: The association between work engagement and a) social media communication (H4a), b) social support (H4b), and c) psychological distress (H4c) have been stronger during the COVID-19 pandemic than before it.

Methods

Participants and Procedure

A four-time-point longitudinal Social Media at Work in Finland survey data set from 2019–2020 was designed to represent the Finnish working population. The first survey was collected in March–April 2019 (Time Point 1; T1; N = 1,817). The participants were re-contacted in September–October 2019 (Time Point 2; T2; N = 1,318), March–April 2020 (Time Point 3; T3; N = 1,081), and September–October 2020 (Time Point 4; T4; N = 1,152). The fourth survey was sent to all original respondents, whereas the third was sent only to those who had responded to the second survey.

The final sample used in this study (N = 965, 45.08% female, M_{age} = 44.97, SD = 11.36) included respondents who answered all four surveys, and the response rate was 53.11%. We found no major bias when conducting nonresponse analyses and when comparing the sample with official census figures of the Finnish working population [8]. The sample encompassed all major occupational fields and covered all large areas of Finland [6]. Analyses focused on working aged employees (18–66) and those respondents who remained employed. Only those respondents who finished the whole survey were included in the final data set. The survey study involved no ethical problems according to the assessment of the Academic Ethics Committee of Finland's [ANONYMIZED FOR REVIEW] region. The survey was conducted in Finnish, and participation was voluntary. The research group designed the survey and collected data in collaboration with Norstat, whose online research panel was used to recruit participants.

Measures

Work Related and Nonwork Related Social Media Communication

We measured the frequency of social media usage for work related communication using the question “How often do you use social media to keep in touch with your colleagues or work community regarding work related matters (e.g., sharing information or agreeing on timetables)?” We measured the frequency of social media usage for nonwork related communication using the question “How often do you use social media to keep in touch with your colleagues or work community regarding nonwork related matters?” Possible answers were *I don’t use it*, *less than weekly*, *weekly*, *daily*, and *many times a day*, with answers assigned numerical values of 0–4, respectively. Both social media communications were measured at every time point i.e., every half a year.

Work Engagement

Work engagement is most often measured with the Utrecht Work Engagement Scale (UWES) [41]. The nine-item version of the test, UWES-9, is used most often due to its construct validity [42]. Example questions include: “At my work, I feel that I am bursting with energy” and “I feel happy when I am working intensely”. Answer options ranged from 0 (*never*) to 6 (*always/every day*). All three dimensions of the UWES were summed up to create a composite variable with a range of 0–54 and a Cronbach’s α coefficient was measured for all time points ranging from .95 to .96. Work engagement was measured at every time point, i.e., every half a year.

Perceived Social Support

Perceived social support at work was measured using four questions about social support received from colleagues, supervisor and work community in general. These questions originate from the second version of the Copenhagen Psychosocial Questionnaire (COPSQ II; see Appendix A) [43] and they have been previously validated as a measure for social support at work [8]. These

four items were summed up to create a composite variable with a range of 4–20. Higher figures indicate higher perceived social support. The scale showed good reliability with a Cronbach's α coefficient ranging from .74 to .79. Perceived social support was measured at every time point, i.e., every half a year.

Task Resources

Task resources were measured using four questions from the work organization and job content dimension of the second version of the Copenhagen Psychosocial Questionnaire (COPSQ II; see Appendix B) [43]. The four questions were summed up to create a composite variable with a range of 4–20. The scale showed sufficient internal consistency with a Cronbach's αcoefficient ranging from .67 to .69. Task resources were measured at every time point, i.e., every half a year.

Psychological Distress

We measured psychological distress using the 12-item General Health Questionnaire (GHQ-12) [44]. Example questions include: "Have you recently felt constantly under strain" and "Have you recently felt capable of making decisions about things". All items were summed up to create a composite variable with a range of 0–36. Higher figures indicate higher psychological distress. The scale showed good reliability with a Cronbach's α coefficient ranging from .89 to .92 between measurement points. Psychological distress was measured at every time point, i.e., every half a year.

Background Variables

The sociodemographic variables used were age, gender, and education. All background variables were measured at every time point, i.e., every half a year.

Statistical Analyses

For the descriptive analyses, we report means and standard deviations for the continuous study variables and frequencies and proportions for the categorical variables. In addition, the standard

deviation between measurements was calculated for the within-person level variables. We also report the correlations between our study variables measured in different time points in the Appendix C.

For all of our hypotheses, we analyzed whether the within-person variation in social media communication, perceived social support, task resources, and psychological distress predicted changes in work engagement. We tested our hypotheses using a hybrid (or within-between) linear regression modeling [45]. This method decomposes the association between the dependent variables and time variant independent variables into within-person and between-person effects. This is done by adding dependent variables' person means (between-person effects) and individual deviations from the person means (within-person effects) into the model simultaneously. Between-person effects are then estimated as associations between the dependent variable and independent variables' person means. Within-person effects are estimated as associations between the dependent variable and the observed deviation from the person means. Thus, the between-person effects describe static differences between individuals, whereas within-person effects describe a dynamic relationship between the timely fluctuations in both the dependent variable and independent variables.

Our analysis proceeded in two steps. Model 1 included all our within-person and between-person main effects and a random intercept. For work related and nonwork related social media communication, perceived social support, task resources, and psychological distress, the effects were estimated as within and between-person effects. For time, we estimated only within-person effects. Time was included as binary variables (T2–T4) using T1 as a reference category. Gender, age, and education at T1 were added to the model as between-person variables, as they varied only between persons.

To test our hypothesized moderation effects, within-person interaction terms between T4 and work related and nonwork related social media communication, perceived social support, task resources, and psychological distress were added to the model (for estimation of within-person interaction terms, see [46]. The statistically significant interaction terms (95% CI) are reported in

Model 2 in Table 2. We report unstandardized regression coefficients (B), their estimated standard errors (*SE* B), statistical significance (*p*-value), the variance of random intercept, and a log pseudolikelihood estimate in Table 2. For effect size estimates, we report Cohen's f^2 coefficients for all the significant predictors (reported only in text). These coefficients are calculated following the approach discussed by Selya and colleagues [47] and they can be interpreted as the proportion of explained variance associated with certain independent variable [48].

Results

The results for the descriptive statistics are shown in Table 1. There were no statistically significant changes in work engagement in T1–T3, but in T4, work engagement decreased (B = -0.66, P = .022; see Table 2). The effect size of this change was low however (Cohen's f^2 < .01). Among the other within-person variables, increase in work related social media communication (B = 0.38, P = .009), social support (B = 0.82, P < .001), and task resources (B = 0.91, P < .001) were associated with increased work engagement. Increased psychological distress, in turn, was associated with reduced work engagement (B = -0.28, P < .001). The variance in work engagement was mainly explained by social support (Cohen's f^2 = .06), task resources (Cohen's f^2 = .05), and psychological distress (Cohen's f^2 = .04), and the effect size for work related social media communication was low (Cohen's f^2 < .01).

Between-person differences in nonwork related social media communication (B = 1.35, Cohen's f^2 < .01, P = .003), social support (B = 0.72, Cohen's f^2 < .01, P < .001), and task resources (B = 1.89, Cohen's f^2 = .01, P < .001) were positively associated with average work engagement, yet they only explained a marginal share of the variance in work engagement. Between-person differences in psychological distress, in turn, were negatively associated with work engagement

(B = -0.57, $P < .001$). The effect size for this association was low (Cohen's $f^2 < .01$). In addition, female gender (B = 4.02, $P < .001$) and age (B = 0.08, $P = .003$) were associated with between-person differences in work engagement. This means that females reported higher work engagement on average than males and older respondents also had higher work engagement on average. However, the effect size was low both for gender **(**Cohen's $f^2 < .01$) and age (Cohen's $f^2 < .01$).

Among our moderations (Model 2), only the interaction effect between T4 and psychological distress were statistically significantly related to work engagement (B = -0.14, $P = .012$). As expected, the negative association between within-person change in work engagement and psychological distress was stronger in autumn 2020 (B = -0.39) than at T1 (B = -0.25, $P < .001$). The overall proportion of the variance in work engagement explained by this interaction was low, however (Cohen's $f^2 < .01$).

Table 1

Descriptive Statistics of the Study Variables

		T1		T2		T3		T4		Within-person
	Range	M	SD	M	SD	M	SD	M	SD	SD
Continuous variables										
Work engagement	0–54	38.78	12.13	39.08	12.15	39.29	11.64	38.42	12.04	5.35
Work related social media comms	0–4	1.27	1.21	1.31	1.19	1.52	1.21	1.51	1.25	0.69
Nonwork related social media comms	0–4	1.16	1.06	1.10	0.99	1.24	1.06	1.18	1.01	0.59
Social support	4–20	14.65	2.86	14.56	2.87	14.68	2.91	14.65	3.01	1.49
Task resources	4–20	13.89	2.76	13.98	2.74	14.03	2.63	13.90	2.70	1.31
Psychological distress	12–48	24.89	6.21	24.14	5.60	24.26	5.29	24.19	5.53	3.32
Age T1	18–64	43.52	10.86							
Categorical variables	Coding	N	%							
Female	0/1	379	43.7							
Basic education	0/1	26	3.00							
Secondary degree	0/1	429	49.4							
n		868		868		868		868		3472

Table 2

Within–Between Models Predicting Change Over Time in Work Engagement

	Model 1			Model 2		
Fixed Effects	B	SE	*P*	B	SE	*P*
Constant	4.84	3.82	.205	3.99	3.89	.305
Within-person variables						
T2 (ref. T1)	0.08	0.26	.753	0.11	0.26	.683
T3 (ref. T1)	0.08	0.28	.769	0.10	0.28	.708
T4 (ref. T1)	**-0.66**	**0.29**	**.022**	2.69	**1.31**	**.040**
Work related social media comms	**0.38**	**0.15**	**.009**	**0.38**	**0.15**	**.010**
Nonwork related social media comms	0.11	0.17	.496	0.12	0.17	.478
Social support	**0.82**	**0.09**	**< .001**	**0.81**	**0.09**	**< .001**
Task resources	**0.91**	**0.10**	**< .001**	**0.92**	**0.10**	**< .001**
Psychological distress	**-0.28**	**0.04**	**< .001**	**-0.25**	**0.04**	**< .001**
Between-person variables						
Female	**4.02**	**0.54**	**< .001**	**4.02**	**0.54**	**< .001**
Basic education	-1.97	1.87	.291	-1.97	1.87	.291
Secondary degree	-0.11	0.54	.838	-0.11	0.54	.838
Age T1	**0.08**	**0.02**	**.003**	**0.08**	**0.02**	**.003**
Work related social media comms	0.44	0.39	.261	0.44	0.39	.261
Nonwork related social media comms	**1.35**	**0.45**	**.003**	**1.35**	**0.45**	**.003**
Social support	**0.72**	**0.14**	**< .001**	**0.72**	**0.14**	**< .001**
Task resources	**1.89**	**0.15**	**< .001**	**1.89**	**0.15**	**< .001**
Psychological distress	**-0.57**	**0.08**	**< .001**	**-0.57**	**0.08**	**< .001**
Within-level interactions						
T4 x Psychological distress				**-0.14**	**0.05**	**.012**
Random effects	var	95% CI		var	95% CI	
Intercept	52.49	[45.37, 60.73]		52.52	[45.40, 60.76]	
Log pseudolikelihood	-11753.96			-11748.44		

Discussion

Principle Findings

This study investigated longitudinally how social media communication at work predicts work engagement. Our theoretical and empirical model was based on the JD–R model and Conservation of Resources theory and considered the role of social support and task resources at work and psychological distress. The results show that work engagement remained stable and only decreased in autumn 2020. Within-person changes in social media communication at work, social support, task resources, and psychological distress were all associated with work engagement. Moreover, work engagement decreased during the autumn 2020 when psychological distress had stronger negative association with work engagement than before the COVID-19 outbreak.

Our findings partly support Hypothesis 1 and fully support Hypothesis 2 by demonstrating that more intensive work related social media communication and higher perceived social support and task resources were associated with higher work engagement within persons. Nonwork related communication with colleagues, perceived social support, and task resources were associated with work engagement between persons. However, within-person changes in nonwork related social media communication did not predict changes in work engagement. Women and older people experienced higher work engagement, as found in previous research on Finns and Europeans [49,50].

Increased psychological distress was associated with reduced work engagement within-persons, supporting Hypothesis 3. We did not find support for Hypotheses 4a and 4b as the associations between work engagement and social media communication, perceived social support, and task resources did not change during the COVID-19 pandemic. The results partly supported Hypothesis 4c because the within-person association between psychological distress and work engagement was stronger during COVID-19 (i.e., in autumn 2020).

Comparison with Prior Work

Our study is timely and first one to offer longitudinal evidence on internal and external social media communication, both work related and nonwork related, in organizations and the related well-being implications, before and during COVID-19. The findings revealed that work engagement stayed in considerably stable state at the beginning of the COVID-19 pandemic during spring 2020. Hence, the results provide interesting insights and conflict with prior studies that indicate major disasters usually provoke stress and reduce resources [22,51]. However, prolonged uncertain situations have detrimental effects on well-being [52], which our results also confirm.

Increased psychological distress was associated with reduced work engagement in the within-person model, which is in line with prior studies of stress and social media use [53,54]. Individuals experienced higher psychological distress and lower work engagement during the autumn 2020, when COVID-19 was already well known, and the crisis was ongoing. Therefore, the results contribute to current literature of crises and ICT use [55,56], indicating that a continued crisis has a negative influence on employee wellbeing and providing further knowledge, especially regarding COVID-19 and professional social media context.

The significant role of various job resources in work engagement construction has been established in prior research and in the social media context [8,13,14]. Our findings strengthen the role of job resources in boosting work engagement during pandemic by demonstrating that an increase in perceived social support and task resources fosters work engagement both within-persons and between persons.

Our findings have practical implications for organizations by demonstrating that work engagement decreased during autumn 2020 while psychological distress was stronger at that point. Employees continued to work in an uncertain situation in autumn 2020 with no certain signs of future relief. Thus, providing mental health support for employees in such situations is crucial. The importance of supervisor support in alleviating employees' emotional exhaustion and feelings of

uncertainty regarding COVID-19 has been denoted [57], which our findings also emphasize. Furthermore, our results indicated that work related social media communication was associated with enhanced work engagement, explaining within-person variation. Hence, communication with colleagues via social media can also act as an important job resource that supports employees' resources and vigor, as well as their dedication to and absorption in their work.

Increased nonwork related social media communication did not explain within-person variation in work engagement. We found only between-person differences because those with high nonwork related social media communication also had a higher level of work engagement on average. Employees that use social media actively for informal communication are also the ones who engage more in their work. This is because when engaged, employees invest energy into their work roles and therefore they behave more proactively [58] and have higher contextual performance, i.e., an individual's propensity to behave in ways that facilitate the social and psychological context of an organization [59]. Furthermore, the association between informal social media communication and work engagement might be more complex. For example, prior literature has reported that the association between informal social media communication and work engagement is mediated via other factors such as social support and organizational identification [8].

Moreover, increased social support and task resources were related to enhanced work engagement both within-persons and between persons. The results emphasize the importance of supporting employees in using their expertise, maintaining a sense of meaningfulness, providing possibilities to influence their work content and workload, and offering and receiving social support.

Strengths and Limitations

We used a longitudinal, nationally representative sample that enabled the analysis of time before and during the COVID-19 crisis and the related effects on well-being which can regard as one of the strengths of this study. The response rate was high, and our survey included a very limited number of missing observations. The study design with work related and nonwork related social

media communication was novel, and a similar longitudinal study has not been completed before. The study was conducted among a Finnish working population and did not examine the COVID-19 crisis cross-nationally. Because the current study was observational by nature, the associations found should not be directly interpreted as causal relationships. Some effects sizes were low, but effect sizes for the main results remained significant even though our model adjusted for number of factors. The study is also limited to self-reported information.

Conclusions

Work engagement decreased during autumn 2020, when psychological distress also had stronger negative association with work engagement. Social media communication at work, perceived social support, and task resources were also associated with higher work engagement. Overall, work engagement remained relatively stable considering the COVID-19 crisis. However, providing mental health support during a prolonged crisis is crucial for organizations. Moreover, supporting employees' resources at work is important in maintaining employee work engagement, in which social media communication can be of help.

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Conflicts of Interest

None declared.

References

1. Oksanen A,Kaakinen M, Latikka R, Savolainen I, Savela N, Koivula A.Regulation and trust: 3-month follow-up study on COVID-19 mortality in 25 European countries. JMIR Public Health Surveill. 2020; 6(2):e19218. https://doi.org/10.2196/19218
2. Kniffin KM, et al. COVID-19 and the workplace: Implications, issues, and insights for future research and action. Am Psychol. 2021;76(1):63–77. http://dx.doi.org/10.1037/amp0000716
3. Eurofound. Living, working and COVID-19. COVID-19 series. Publications Office of the European Union, Luxemburg [Internet]. [cited 2020 Dec 12]. Available from https://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef20059en.pdf
4. Kestilä L, Härmä V, Rissanen, P. Covid-19-epidemian vaikutukset hyvinvointiin, palvelujärjestelmään ja kansantalouteen [The impacts of the COVID-19 epidemic to wellbeing, service systems and economy]. Expert assessment, autumn 2020 report no.14. Helsinki: Finnish Institute for Health and Welfare. [Internet]. [cited 2020 Dec 12]. Available from http://urn.fi/URN:ISBN:978-952-343-578-0
5. Keyriläinen M. Työolobarometri 2019 [Working Life Barometer 2019]. Publications of the Ministry of Economic Affairs and Employment 2020 no. 53. [Internet]. [cited 2020 Dec 13]. http://urn.fi/URN:ISBN:978-952-327-541-6
6. Oksanen A, Oksa R, Savela N, Mantere E, Kaakinen M. COVID-19 Crisis and Digital Stressors at Work: A Longitudinal Study on the Finnish Working Population. Comp Hum Behav 2021. https://doi.org/10.1016/j.chb.2021.106853
7. Nisar TM, Prabhakar G, Strakova L. Social media information benefits, knowledge management and smart organizations. J Bus Res. 2019;94:264–272. https://doi.org/10.1016/j.jbusres.2018.05.005
8. Oksa R, Kaakinen M, Savela N, Ellonen N, Oksanen A. Professional social media usage: Work engagement perspective. New Media Soc. 2020;1461444820921938. https://doi.org/10.1177/1461444820921938
9. Waizenegger L, McKenna B, Cai W, Bendz T. An affordance perspective of team collaboration and enforced working from home during COVID-19. Eur J Inf Syst. 2020;29:429–442. https://doi.org/10.1080/0960085X.2020.1800417
10. Mäntymäki M, Riemer, K. Enterprise social networking: a knowledge management perspective. Int J Inf Manage. 2016;36(6):1042–

1052. https://doi.org/10.1016/j.ijinfomgt.2016.06.009

11. Robertson BW, Kee KF. Social media at work: the roles of job satisfaction, employment status, and Facebook use with co-workers. Comput Hum Behav 2016;7:191–196. https://doi.org/10.1016/j.chb.2016.12.080
12. Schaufeli WB, Salanova M, Gonzales-Roma V, Bakker AB. The measurement of engagement and burnout: A two sample confirmative factor analytic approach. J Happiness Stud. 2002;3(1):71–92. https://doi.org/10.1023/A:1015630930326
13. Schaufeli WB, Bakker A. Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. Organ Behav. 2004a;25(3):293–315. https://doi.org/10.1002/job.248
14. Hakanen JJ, Schaufeli WB, Ahola K. The job demands-resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. Work Stress. 2008;22(3):224–241. https://doi.org/10.1080/02678370802379432
15. Bakker A. An evidence-based model of work engagement. Curr Dir Psychol. 2011;20(4):265–269. https://doi.org/10.1177/0963721411414534
16. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. Psychol Bull. 1985;98(2):310–357. https://doi.org/10.1037/0033-2909.98.2.310
17. House JS, Kahn RL. Measures and concepts of social support. In Cohen S, Syme SL. (Eds.) Social support and health. Academic Press (New York) 1985:83-108.
18. Schwarzer R. Knoll N. Functional roles of social support within the stress and coping process: A theoretical and empirical overview. Int J Psychol. 2007;42(4):243-252.
19. Xanthopoulou D, Bakker AB, Demerouti, E, Schaufeli WB. Work engagement and financial returns: A diary study on the role of job and personal resources. J Occup Organ Psychol. 2009;82(1):183–200. https://doi.org/10.1348/096317908X285633
20. Kahn WA, Fellows S. Employee engagement and meaningful work. In Dik BJ, Byrne Z S, Steger MF, editors. Purpose and meaning in the workplace. American Psychological Association; 2013. p. 105–126 [Internet]. [cited 2021 Jan 20]. Available from: https://doi.org/10.1037/14183-006
21. Wingerden J, Van der Stoep J. The motivational potential of meaningful work: Relationships with strengths use, work engagement, and performance. Plos One. 2018;13(6):e0197599. https://doi.org/10.1371/journal.pone.0197599
22. Hobfoll SE. The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. J Appl Psychol. (2001;50(3):337–421.

https://doi.org/10.1111/1464-0597.00062

23. Innstrand S, Langballe E, Falkum EA. Longitudinal study of the relationship between work engagement and symptoms of anxiety and depression. Stress Health. 2012;28(1):1–10. https://doi.org/10.1002/smi.1395
24. Schaufeli WB, Taris TW, Van Rhenen W. Workaholism, burnout and engagement: Three of a kind or three different kinds of employee well-being. J Appl Psychol. 2008;57(2):173–203. https://doi.org/10.1111/j.1464-0597.2007.00285.x
25. Schaufeli WB, Bakker AB, Van Rhenen W. How changes in job demands and resources predict burn-out, work engagement, and sickness absenteeism. Organ Behav. 2009;30(7):893–917. https://doi.org/10.1002/job.595
26. Hakanen JJ, Schaufeli WB. Do burnout and work engagement predict depressive symptoms and life satisfaction? A three-wave seven-year prospective study. J Aff Disord. (2012;141(2–3):415–424. https://doi.org/10.1016/j.jad.2012.02.043
27. Hakanen JJ, Rouvinen P, Ylhäinen I. The Impact of Work Engagement on Future Occupational Rankings, Wages, Unemployment, and Disability Pensions—A Register-Based Study of a Representative Sample of Finnish Employees. Sustainability. 2021;13(4):1626. https://doi.org/10.3390/su13041626
28. Seppälä P, Mauno S, Kinnunen M, Feldt T. Juuti T, Tolvanen A, Rusko H. Is work engagement related to healthy cardiac autonomic activity? Evidence from a field study among Finnish women workers. J. Positive Psychol. 2012;7:95–106. https://doi.org/10.1080/17439760.2011.637342
29. Shimazu A, Schaufeli WB, Kubota K, Watanabe K, Kawakami N. Is too much work engagement detrimental? PLoS ONE. 2018;13(12):e0208684. https://doi.org/10.1371/journal.pone.0208684
30. Davidson RM. The transformative potential of disruptions: A viewpoint. Int J Inf Manage. 2020;55:102149. https://doi.org/10.1016/j.ijinfomgt.2020.1021491
31. Dittes S, Richter S, Richter A, & Smolnik S. Toward the workplace of the future: How organizations can facilitate digital work. Bus Horiz. 2019;62:649–661. https://doi.org/10.1016/j.bushor.2019.05.004
32. Charoensukmongkol P. Effects of support and job demands on social media and work outcomes. Comput Hum Behav. 2014;36:340–349. https://doi.org/10.1016/j.chb.2014.03.061
33. Oshio T, Inoue A, Tsutsumi A. Associations among job demands and resources, work

engagement, and psychological distress: Fixed-effects model analysis in Japan. J Occup Health. 2018;60(3):254–262. https://doi.org/10.1539/joh.2017-0293-OA

34. Labrague LJ, De los Santos JAA. COVID-19 anxiety among front-line nurses: Predictive role of Organizational support, personal resilience and social support. J Nurs Manag. 2020;28(7):1653–1661. https://doi.org/10.1111/jonm.13121
35. Evanoff BA, Strickland JR, Dale AM, Hayibor L, Page, E, Duncan JG, & Gray DL. Work-related and personal factors associated with mental well-being during COVID-19 Response: A survey of health care and other workers. J Med Internet Res. 2020;22:e21366. https://doi.org/10.2196/21366
36. McGinty EE, Presskreischer R, Han H, Barry, CL. Psychological distress and loneliness reported by US adults in 2018 and April 2020. JAMA. 2020;324(1):93–94. https://doi.org/10.1001/jama.2020.9740
37. Chen Q, Liang M, Li Y, Guo J, Fei D, Wang L, Wang J. Mental health care for medical staff in China during the COVID-19 outbreak. Lancet. 2020;7(4):E15–E16. https://doi.org/10.1016/S2215-0366(20)30078-X
38. Ryan RM, Deci EL. *Self-determination theory: Basic psychological needs in motivation, development and wellness*. 2017;Guilford.
39. Ramaci T, Pellerone M, Ledda C, Radisarda V. Health promotion, psychological distress, and disease prevention in the workplace: A cross-sectional study of Italian adults. Risk Manag Healthc Policy. 2017;10:167–175. https://doi.org/10.2147/RMHP.S139756
40. Ruiz-Frutos C, Ortega-Moreno, M, Allande-Cussó R, Ayuso-Murillo D, Domínguez-Salas S, Gómez-Salgado J. Sense of coherence, engagement, and work environment as precursors of psychological distress among non-health workers during the COVID-19 pandemic in Spain. Safety Science. 2021;133:105033. https://doi.org/10.1016/j.ssci.2020.105033
41. Schaufeli WB, Bakker AB. UWES Utrecht work engagement scale. Preliminary manual [Version 1.1, December 2004]. Utrecht University: Occupational Health Psychology Unit [Internet]. [cited 2021 Feb 1]. Available at: https://www.wilmarschaufeli.nl/publications/Schaufeli/Tests/UWES_GB_9.pdf
42. Seppälä P, Mauno S, Feldt T, Hakanen J, Kinnunen U, Tolvanen A, Schaufeli W. The construct validity of the Utrecht work engagement scale: Multi-sample and longitudinal evidence. J Happiness Stud. 2009;10(4):459–481. https://doi.org/10.1007/s10902-008-9100-y
43. Pejtersen JH, Søndergård T, Kristensen RD, Borg V, Bjorner JB. The second version of the Copenhagen Psychosocial Questionnaire. Scand J Public Health. 2010;38(3):8–24.

https://doi.org/10.1177/1403494809349858

44. Goldberg DP, Gater R, Sartorius N, Ustun TB, Piccinelli M, Gureje O, Rutter C. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. Psychol Med. 1997; 27:191–197. https://doi.org/10.1017/S0033291796004242
45. Schunck R, Perales F. Within- and between-cluster effects in generalized linear mixed models: A discussion of approaches and the xthybrid command. SJ. 2017;17(1):89–115. https://doi.org/10.1177/1536867X1701700106
46. Schunck R. Within and between estimates in random-effects models: Advantages and drawbacks of correlated random effects and hybrid models. SJ. 2013;13(1):65–76. https://doi.org/10.1177/1536867X1301300105
47. Selya AS, Rose JS, Dierker LC, Hedeker D, Mermelstein RJ. A Practical Guide to Calculating Cohen's f2, a Measure of Local Effect Size, from PROC MIXED. Front Psychol. 2012 3(APR);Article 111. https://doi.org/10.3389/fpsyg.2012.00111
48. Lorah J. Effect size measures for multilevel models: definition, interpretation, and TIMSS example. Large-Scale Assessments in Education 2018;6(1):8. https://doi.org/10.1186/s40536-018-0061-2
49. Hakanen JJ, Ropponen A, Schaufeli WB, De Witte H. Who is engaged at work? A large-scale study in 30 European Countries. J Occup Environ Med. 2019;61(5):373–381. https://doi.org/10.1097/JOM.0000000000001528
50. Hakanen, JJ. Työn imun arviointimenetelmä. Työn imu-menetelmän (Utrecht Work Engagement Scale) käyttäminen, validointi ja viitetiedot Suomessa [Utrecht Work Engagement Scale: Finnish Manual, Validation and Reference Data]. 2009;Helsinki:Finnish Institute of Occupational Health.
51. Freedy JR, Saladin ME, Kilpatrick DG, Resnick HS, Saunders BE. Understanding acute psychological distress following natural disaster. J Trauma Stress. 1994;7:257–273. https://doi.org/10.1002/jts.2490070207
52. Rettie H, Daniels, J. Coping and tolerance of uncertainty: Predictors and mediators of mental health during the COVID-19 pandemic. Am Psychol. 2020. http://dx.doi.org/10.1037/amp0000710
53. Maier C, Laumer S, Weinert C, Weitzel T. The effects of technostress and switching stress on discontinued use of social networking services: A study of Facebook use. Inf Syst J. 2015;25(3):275–308. https://doi.org/10.1111/isj.12068
54. Salo M, Pirkkalainen H, Koskelainen T. Technostress and social networking services:

Explaining users' concentration, sleep, identity, and social relation problems. Inf Syst J. 2019;29(2):408–435. https://doi.org/10.1111/isj.12213

55. Leidner DE, Pan G, Pan SL. The role of IT in crisis response: Lessons from SARS and Asian Tsunami disasters. J Strateg Inf Syst. 2009;18(2):80–99. https://doi.org/10.1016/j.jsis.2009.05.001
56. Leong CML, Pan SL, Ractham P, Kaewkitipong L. ICT-enabled community empowerment in crisis response: Social media in Thailand flooding 2011. J Assoc Inf Syst. 2015;16(3). https://doi.org/10.17705/1jais.00390
57. Charoensukmongkol P, Phungsoonthorn T. The effectiveness of supervisor support in lessening perceived uncertainties and emotional exhaustion of university employees during the COVID-19 crisis: The constraining role of organizational intransigence. J Gen Psychol. 2020;1–20. https://doi.org/10.1080/00221309.2020.17956
58. Hakanen JJ, Peeters MCW, Schaufeli WB. Different types of employee well-being across time and their relationships with job crafting. J Occup Health Psychol. 2018;23:289–301.http://dx.doi.org/10.1037/ocp0000081
59. Christian MS, Garza AS, Slaughter JE. Work engagement: A quantitative review and test of its relations with task and contextual performance. Pers Psychol. 2011;64(1)8:9–136. https://doi.org/10.1111/j.1744-6570.2010.01203.x

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