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The protective role of work self-efficacy on wellbeing during COVID-19 pandemic: Results from a longitudinal year-long study

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ABSTRACT

In this study, we focused on four work self-efficacy dimensions and their relationship with wellbeing during the COVID-19 pandemic. We adopted a person-centered approach and investigated whether individuals with different work self-efficacy profiles would have different wellbeing experiences at 6 and 12 months from the beginning of the pandemic. Data were collected in the UK across three waves (January 2020, October 2020 and January 2021) on a sample of 393 full-time employees. Results showed that being in two at-risk profiles significantly increases the likelihood of experiencing lower wellbeing during the pandemic. In particular, the probability of belonging to the Profile 3 “low self-efficacy but high empathic” significantly increased the risk of lower wellbeing in the shorter and longer timeframe. In addition, the probability of belonging to the Profile 2 “high assertive and task self-efficacy but low emotional” also significantly increased the risk of lower wellbeing in the longer timeframe.

1. Introduction

The COVID-19 pandemic constitutes a major threat to physical and mental health (Huremović, 2019). Although it can be seen as an “acute extra-organizational stressor” (Kuntz, 2021, p. 188), it has prompted major changes in the workplace and increased experiences of anxiety and depression (Restubog et al., 2020). The lack of individuals' choice in adopting these work practices means that individuals' resources have been crucial for thriving in the “new normal”. We argue about the importance of individual sense of control and in particular of work self-efficacy (SE) in different areas of functioning (i.e. task, emotional and social). SE is an important personal resource (Heuven et al., 2006) which could make a difference to the impact of COVID-19 on psychological wellbeing (Zhou et al., 2021): “A resilient sense of efficacy is needed to overrule emotional and psychosocial subverters of self-regulative efforts” (Bandura et al., 2003, p. 770).

SE refers to the individual's beliefs about their “capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). It enables individuals to perform and learn at a designated level, but it also allows them to cope with challenges and stressors including natural disaster and traumatic events (Schönfeld et al., 2016). In a yearlong study, we adopted a person-

centered approach (Magnusson & Torestad, 1993; Morin et al., 2018) to investigate whether individuals with different work SE profiles would have different wellbeing experiences at 6 and 12 months from the beginning of the pandemic.

While most studies on work SE focus on perceived confidence in dealing with tasks and its effect on performance (Judge et al., 2007), we argue that work SE should be conceived as a broader set of self-regulatory capabilities, especially when investigating wellbeing (Durak et al., 2011). Hence, we focused on task, emotional and social SEs (Barbaranelli et al., 2018).

Task SE refers to the perceived capability to manage work activities oriented towards the achievement of goals. It is the expression of behavioral self-regulative capabilities allowing employees to plan actions, fulfil their goals, modulate their own behavior and maintain their effort during difficulties (Bandura, 1997). It has been studied mainly in relation to performance (Judge et al., 2007), however there is some evidence about its role on wellbeing (Carroll et al., 2009; Shoji et al., 2016). Emotional SE is the expression of emotional regulation capabilities allowing individuals to manage negative emotions associated with stressful events. It represents an important protective factor positively associated with wellbeing and health-related outcomes (Caprara et al., 2010; Lightsey et al., 2011). Social SE refers to perceived capabilities to

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build adaptive social relationships. This dimension is the expression of both the capabilities to understand others' states and needs (empathic SE) and the capabilities to express and defend one's own point of view (assertive SE). It is a dimension less studied in the literature but there is evidence it is associated with positive adjustment (Barbaranelli et al., 2018).

Individuals can differ in their levels of work SE (high or low) but might also differ in SEs profile in these different areas of personality functioning. While some might feel confident in all the areas others might feel more confident in some of them. By adopting a person-centered approach, we aim to identify clusters of individuals characterized by specific SE configurations. This allows to investigate if certain clusters are more vulnerable or resilient than others, and the implications for their wellbeing. We expect that individuals confident in all areas of functioning would be the most resilient and their wellbeing less affected by the pandemic. Similarly, less confident individuals would be more vulnerable and more likely to experience lower wellbeing. However, we also expect that clusters with intermediate profiles (high in certain dimensions but low in others) might express some forms of resiliency (Paciello et al., 2016). Lower perceived confidence in one area could be compensated by higher confidence in another.

With this research we make important theoretical contributions. We connect the literature in personality with work and organizational psychology to highlight: 1. The importance of emotional and social skills for wellbeing (Durlak et al., 2011) and 2. The importance of SE for non-performance related outcomes such as mental health and wellbeing (Caprara et al., 2006; Phan et al., 2016). SE allows individuals to perform at a high standard and learn from their mistakes (Stajkovic & Luthans, 1998). However, this is not sufficient for guaranteeing positive adjustment, especially in challenging times where we consider emotional and social SE as important personal resources characterizing more resilient profiles.

A number of longitudinal studies have investigated SE as a crucial antecedent of several outcomes in children and young adults (Vecchio et al., 2007), but very few in the working context. Work SE literature highlights its importance in predicting positive outcomes, but its role as protective of wellbeing has not been considered sufficiently and we lack longitudinal studies looking at the effect of SE over time and during periods of strain.

1.1. COVID-19 and work self-efficacy

The COVID-19 pandemic has had wide ranging detrimental effects, but it also constitutes a unique opportunity to investigate the importance of SE beliefs for wellbeing at a time of great strain. The pandemic has radically changed many ways of working. The changes to work suggest an important role for individuals work SE to maintain their wellbeing. Increased independence and responsibility for working unsupervised while managing potential disruptions at home underline the importance of task SE in adapting (Chong et al., 2020). Both in and outside of work the pandemic may have contributed to increased emotional strain for individuals and so, emotional SE to regulate emotions at a time of stress could be protective of wellbeing (Restubog et al., 2020). Relationships remain an important feature of work even if the pandemic has made many of these virtual or more distant and social support can attenuate the challenges of remote working (Wang et al., 2021), therefore social SE could reduce negative wellbeing. The empathic dimension could have been particularly important when for example, asked to cover colleagues who had to self-isolate or to deal with family demands. At the same time the assertive dimension of social SE may also be important. Research has suggested perceived control may influence changes in wellbeing as a result of the pandemic (Wanberg et al., 2020) and self-discipline as important in coping with a shift to remote working (Wang et al., 2021). The capability to be able to set boundaries and defend their own space would allow people for example, to say no to a request to do some extra-work when feeling overstretched.

Overall, the perception of work SE is not only likely to be an advantage, but the lack of confidence in these areas may actually be experienced as a vulnerability, particularly during a time of great strain when the need to take proactive steps in managing wellbeing is crucial.

2. Methods

2.1. Participants

The study was approved by the Norwich Business School, University of East Anglia ethical committee. Informed consent was obtained for all participants. Three waves of data were collected in the United Kingdom (UK) from January 2020 to January 2021 using an online panel provider (Prolific Academic, <http://www.prolific.ac>). The inclusion criteria were living in the UK and being currently employed. Participants were compensated for the time spent answering the questionnaire. At Time 1 (January 2020) the UK was not noticeably affected by COVID-19. Time 2 was collected when a second lockdown in England was announced at the end of October 2020. Time 3 was collected in January 2021 12 months after Time 1.

Ten participants were excluded from the analysis because they failed at least one attention check in at least one wave. The final sample at T1 included 393 full-time employees (65.4 % women) ranging in age between 19 and 66 years ($M = 36.15$; $SD = 9.57$); 91.3 % white/Caucasian; 65.4 % with at least an undergraduate degree; 29.8 % professionals, 23.9 % clerical support workers, 20.6 % managers, 10.2 % technicians or junior professionals; 87.8 % with a permanent contract; 34.1 % worked for their organization between 2 and 5 years, 25.4 % between 5 and 10 years, 22.4 % >10 years, 18.1 % <2 years. Almost one third of the sample included keyworkers (30.5 %). The sample at T2 was 311 (20.9 % drop-out), 244 at T3 (37.9 % drop-out). Results of the Little's test confirmed that missing data were at random (Little's test: $\chi^2 = 463.483$, $df = 466$, $p = .524$).

2.2. Measures

Work SE dimensions were measured adapting the scale developed by Barbaranelli et al. (2018). Empathic SE was measured by three items (e.g., "Understand the mood of your colleagues") (Cronbach's alpha = 0.81); assertive SE by three items (e.g., "Express your ideas even when your colleagues do not agree with you") (Cronbach's alpha = 0.85); task SE by three items (e.g., "Organize your work even when unexpected events and urgencies occur") (Cronbach's alpha = 0.74); emotional SE by four items, (e.g., "Control your anxiety when under pressure") (Cronbach's alpha = 0.86). A 5-point Likert scale was employed (from 1 = "Not at all Confident" to 5 = "Completely Confident").

Psychological wellbeing was measured using the 12 items of the General Health Questionnaire (Banks et al., 1980). Six items measured positive wellbeing (Cronbach's alpha T1 = 0.82; T2 = 0.86; T3 = 0.87) and six items measured negative wellbeing (Cronbach's alpha T1 = 0.87; T2 = 0.89; T3 = 0.88). A 4-point scale was employed (from 1 = "Never" to 4 = "Always").

Job-related depressive feelings were measured at T3 by three emotions (upset, depressed and sad). Participants were asked to indicate how frequently any part of their job made them feel that emotion in the last month (from 1 = "Never" to 4 = "Always") (Cronbach's alpha T3 = 0.90).

Control variables. COVID-19 life related events and COVID-19 work related events were measured at both T2 and T3. Participants were asked to select any of the listed events that occurred to them (life events: from been isolated due to suspected COVID-19 to the loss of a relative or friend due to COVID-19; work events: from being asked to work from home to being made redundant or being asked for a voluntary salary reduction). The two overall scores were created as the sum of the critical events participants experienced. Almost 65 % of the participants experienced at least one life-related event and about 60 % experienced at

Table 1
Descriptive statistics and correlations of the study variables.

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Gender (1 = Male; 2 = Female)	-	-	-																		
2. Age	36.15	9.57	-0.140*	-																	
3. Education			0.144**	-0.133**	-																
4. Keyworker (0 = No; 1 = Yes)			0.048	0.017	-0.046	-															
5. COVID-19 life stressors T2	0.98	0.92	0.054	-0.148**	0.052	0.112*	-														
6. COVID-19 work stressors T2	1.22	1.01	0.041	-0.195**	0.144*	-0.205**	0.018	-													
7. COVID-19 life stressors T3	0.95	0.96	-0.003	-0.094	0.035	0.081	0.277**	0.158*	-												
8. COVID-19 work stressors T3	0.75	0.78	0.057	-0.166**	0.137*	-0.129*	0.139*	0.361**	0.151*	-											
9. Task self-efficacy T1	4.26	0.59	0.145**	0.127*	-0.022	0.096	-0.030	-0.080	0.017	-0.116	0.740										
10. Emotional self-efficacy T1	3.24	0.81	-0.098	0.101*	-0.024	0.119*	-0.041	-0.121*	0.010	-0.144*	0.409**	0.861									
11. Assertive self-efficacy T1	3.78	0.78	-0.104*	0.139**	-0.012	0.115*	0.074	-0.041	-0.010	-0.082	0.446**	0.471**	0.852								
12. Empathic self-efficacy T1	3.75	0.68	0.121*	0.014	0.028	0.116*	0.013	-0.020	0.018	-0.060	0.376**	0.549**	0.350**	0.815							
13. Negative wellbeing T1	2.00	0.68	0.090	-0.072	-0.007	-0.060	0.096	0.155**	0.073	0.057	-0.120*	-0.391**	-0.132**	-0.092	0.870						
14. Negative wellbeing T2	1.93	0.68	0.134*	-0.138*	0.052	-0.027	0.169**	0.145*	0.161*	0.146*	-0.178**	-0.339**	-0.163**	-0.051	0.612**	0.886					
15. Negative wellbeing T3	2.00	0.71	0.136*	-0.161*	0.068	0.010	0.207**	0.042	0.154*	0.088	-0.037	-0.321**	-0.082	0.014	0.603**	0.771**	0.878				
16. Positive wellbeing T1	2.83	0.54	-0.006	0.129*	0.040	0.149**	-0.029	-0.146*	-0.007	-0.073	0.380**	0.514**	0.331**	0.350**	-0.539**	-0.416**	-0.404**	0.819			
17. Positive wellbeing T2	2.75	0.61	-0.088	0.182**	-0.052	0.106	-0.062	-0.117*	-0.141*	-0.154*	0.252**	0.388**	0.244**	0.162**	-0.341**	-0.580**	-0.487**	0.500**	0.862		
18. Positive wellbeing T3	2.67	0.64	-0.032	0.269**	0.014	0.129*	-0.103	-0.116	-0.110	-0.132*	0.219**	0.447**	0.214**	0.214**	-0.434**	-0.543**	-0.585**	0.565**	0.644**	0.874	
19. Depressive feelings T3	2.12	1.04	0.218**	-0.239**	0.054	-0.037	0.232**	0.020	0.091	0.082	-0.069	-0.315**	-0.021	-0.014	0.460**	0.544**	0.726**	-0.332**	-0.347**	-0.497**	0.904

Cronbach's alphas are presented in the diagonal.

* $p < .05$.

** $p < .01$.

Table 2
Results of the latent profile analysis.

#Classes	#Parameters	LL	AIC	BIC	SABIC	Entropy	VLMR	BLRT	#Classes with less 10 % of the sample
1	10	-2348	4716.38	4755.96	4724	-	-	-	0
2	16	-2313	4658.24	4721.57	4671	0.65	0.01	<0.001	0
3	22	-2281	4606.84	4693.92	4624	0.72	0.01	<0.001	0
4	28	-2258	4571.80	4682.64	4594	0.70	0.10	<0.001	0
5	34	-2235	4537.99	4672.58	4565	0.73	0.04	<0.001	1
6	40	-2217	4513.26	4671.60	4545	0.72	0.33	<0.001	2
7	46	-2161	4413.20	4595.29	4449	0.92	0.56	<0.001	3
8	52	-2109	4322.38	4528.22	4363	0.93	0.06	<0.001	3

Note. LL = Loglikelihood; AIC = Akaike's information criterion; BIC=Bayesian Information Criterion; SABIC=Sample Size-Adjusted Bayesian Information Criterion; VLMR = Vuong-Lo-Mendell-Rubin adjusted likelihood ratio test; BLRT = bootstrapped likelihood ratio test.

least one work-related event.

Socio-demographic characteristics were also considered as control variables. Literature showed that while age was associated with greater emotional wellbeing during COVID-19 (Carstensen et al., 2020), education was associated with greater increase in depressive symptoms and decrease in life satisfaction (Wanberg et al., 2020). We also expect gender to play a role. Previous findings have shown that women are more at risk of work-related stress (Brookes et al., 2013), emotional exhaustion (Purvanova & Muros, 2010) and mental health issues (Nolen-Hoeksema & Hilt, 2009). Designated keyworkers may have experienced higher exposure to COVID-19, although evidence is more equivocal regarding its impact on mental health (Lamb et al., 2020). Considering possible effects, we included age, educational status, gender and keyworker status as control variables.

2.3. Data analysis

We adopted a person-centered approach (Latent Profile Analysis, LPA) to investigate the protective role of work SE profiles on psychological wellbeing during the COVID-19 pandemic. In line with the literature on work SE (Barbaranelli et al., 2018) and LPA (Morin et al., 2016, 2018) we first conducted a bifactor model to identify one general SE factor and the orthogonal four work SE specific factors. The factor scores derived from this factor model were then used to identify the SE profiles. The best fitting LPA solution was identified considering: 1) the plot of the Akaike's information criterion (AIC) and the Bayesian

Information Criterion (BIC); 2) the Sample Size-Adjusted Bayesian Information Criterion (SABIC); 3) the Vuong-Lo-Mendell-Rubin adjusted likelihood ratio test (VLMR); 4) the bootstrapped likelihood ratio test (BLRT). VLMR and BLRT *p* values <.01 associated with a specific LPA solution suggest accepting a solution with *k*-1 number of profiles. In addition, we also examined the entropy coefficient (>0.70) and the cluster size (at least 10 % of the sample).

The longitudinal effect of work SE profiles on wellbeing at T2 and T3 was examined by testing two structural equation models. In the first model positive and negative wellbeing at T2 were specified as dependent variables; in the second model wellbeing measures and depressive feelings at T3 were specified as dependent variables. In both models, the independent variables were profiles' posterior probabilities, wellbeing at T1, and the covariates measured either at T2 or T3. Wellbeing measures were specified as latent variables measured by their indicators. In line with literature, we estimated the correlations between residuals of the same wellbeing indicator across time (Little, 2013, p. 164). Because missing data were at random (see results of the Little's test presented above) the model was estimated using the full information maximum likelihood (FIML) method.

3. Results

3.1. Preliminary analysis

Table 1 shows the descriptive statistics and correlations of the study

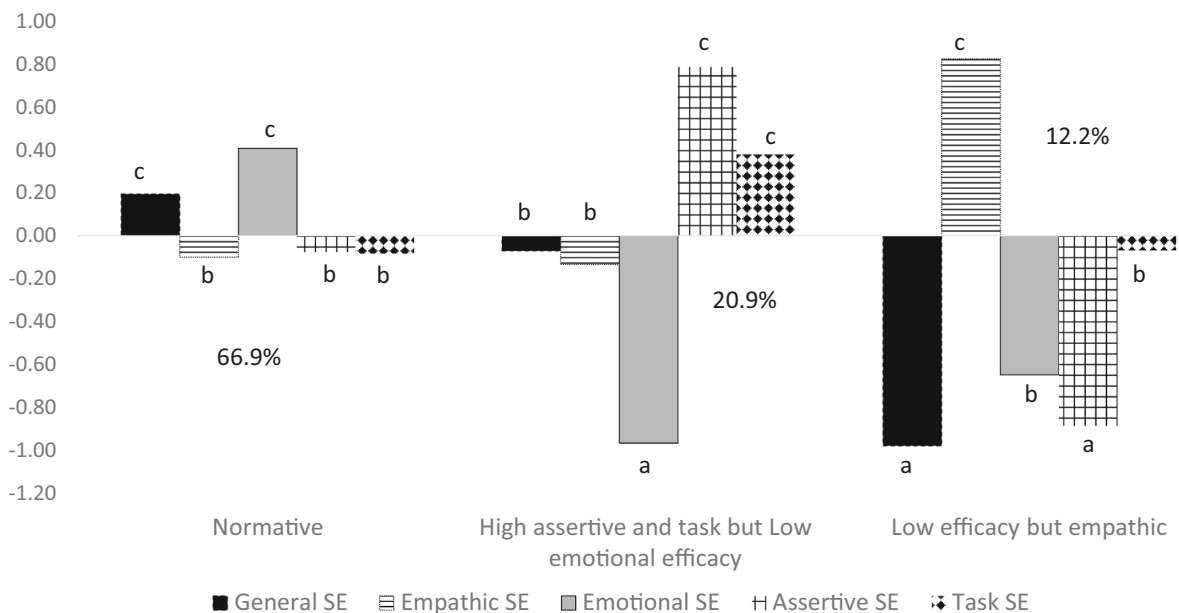


Fig. 1. Work self-efficacy profiles: Results of the 3-class latent profile analysis

Notes. Different letters correspond to significant simple effects from the multivariate analysis of variance reported in the text.

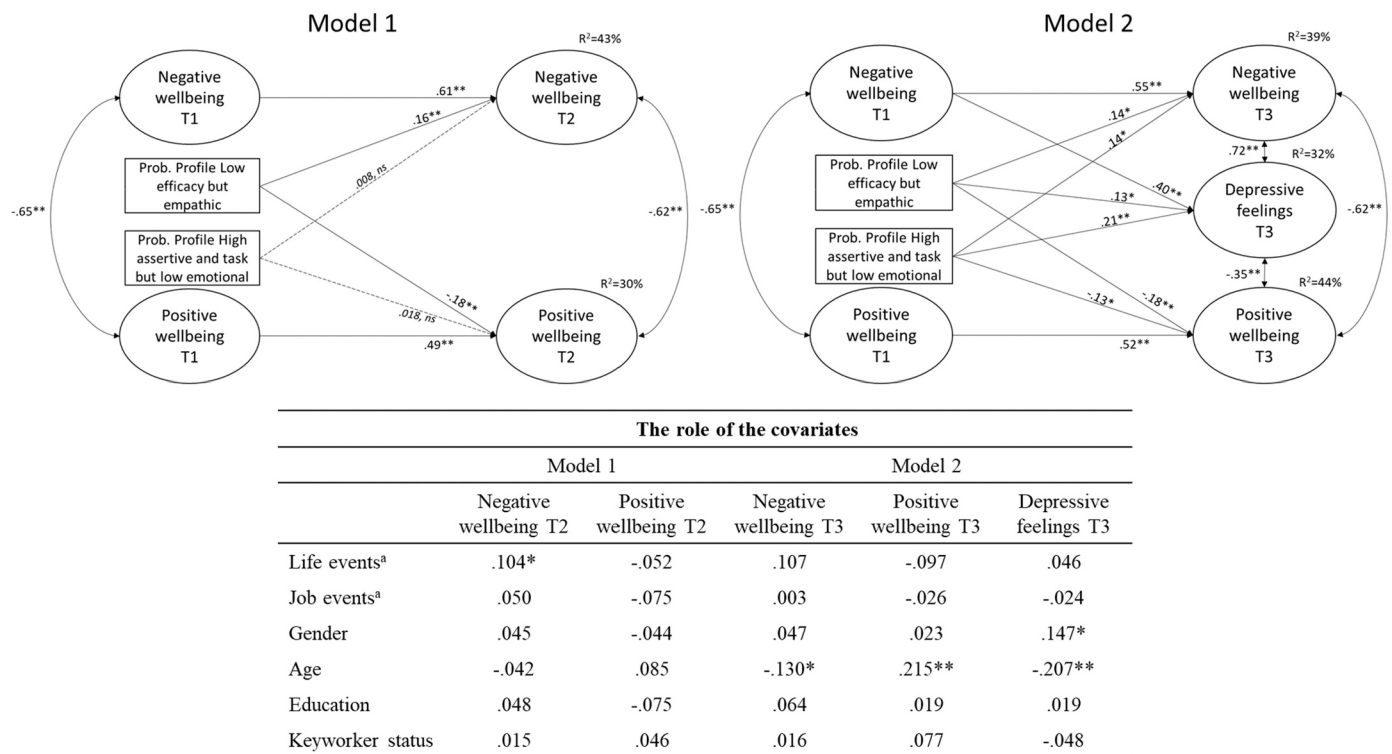


Fig. 2. Work self-efficacy profiles and wellbeing over time: results of structural equation models. Notes. * $p < .05$; ** $p < .01$. ^aPlease note that in Model 1 life and job events were measured at T2, while in Model 2 they were measured at T3. Negative and positive wellbeing and depressive feelings were defined as latent variables measured by their indicators. All the loadings were significant for $p < .001$.

variables. SE dimensions were significantly correlated with each other and with the positive indicator of wellbeing at all waves. Emotional SE was also correlated with the negative indicator of wellbeing measured; task and assertive SE were correlated with T2 and T1 negative wellbeing; empathic SE was not correlated with negative wellbeing. Only emotional SE was correlated with depressive feelings at T3.

3.2. Work SE profiles

Results of the bifactor model on the work SE scale fit the data well ($\chi^2(52) = 81.500, p < .01$; CFI = 0.99; TLI = 0.98; RMSEA = 0.038(90% CI 0.021–0.054), $p = .89$; SRMR = 0.038). All the standardized loadings were significant ($p < .001$) with an average of 0.54 (SD = 0.11). General and specific factor scores were saved and used in the LPA.

Table 2 shows the results of the LPA solutions from 1 to 8 classes. The plot of both BIC and AIC suggested either the 3 or 6-profile solution. However, because the VLMR of the 6-profile solution was not significant and there were 2 classes with <10 % of cases we concluded that the 3-profile LPA was the best solution (Fig. 2). The results of the multivariate analysis of variance attested the statistically significant multivariate effects for profile membership ($F = 84.153, p < .001$; Wilk's $\Lambda = 0.220$, partial $\eta^2 = 0.531$). The analysis of principal effects also attested significant profile differences in all the SE dimensions (General SE $F = 38.110, p < .001$, partial $\eta^2 = 0.169$; Empathic SE $F = 27.274, p < .001$, partial $\eta^2 = 0.127$; Emotional SE $F = 282.879, p < .001$, partial $\eta^2 = 0.601$; Assertive SE $F = 95.497, p < .001$, partial $\eta^2 = 0.337$; Task SE $F = 11.753, p < .001$, partial $\eta^2 = 0.059$). The analysis of the simple effects was used to investigate differences among the profiles (see Fig. 1 with the results of this analysis).

Profile 1 (Normative) included the majority of the sample (66.9 %) and could be considered as the normative profile. Individuals in this group showed the highest levels of general and emotional SE and medium levels in the other dimensions.

Profile 2 (High assertive and task but low emotional SE) included

20.9 % of the sample. Individuals in this profile have the highest levels in assertive and task SE but also the lowest levels of emotional SE. They show medium levels in the general and levels of empathic SE not significantly different from the normative profile.

Profile 3 (Low SE but empathic) included 12.2 % of the sample. Individuals in this profile have the highest levels in empathic SE but also the lowest levels of general and assertive SE. They show medium levels of emotional SE.

The three profiles did not show differences in any socio-demographic characteristic: gender ($\chi^2(2) = 5.578, p = .061$); age ($F(2) = 0.820, p = .441$); ethnicity ($\chi^2(10) = 9.679, p = .469$); education ($\chi^2(6) = 5.846, p = .441$). Also in relation to the job related characteristics we found no significant differences: keyworker status ($\chi^2(2) = 0.850, p = .654$); remote working ($\chi^2(4) = 1.212, p = .876$); job contract ($\chi^2(12) = 14.278, p = .283$); organizational tenure ($\chi^2(10) = 10.098, p = .432$).

3.3. Work SE profiles and wellbeing over time

Results of the models with the outcomes on T2 and T3 are presented in Fig. 2. Both models fit the data well, although the CFA and TLI were slightly lower than 0.90 (Model 1: $\chi^2(412) = 885.726, p < .01$; CFI = 0.88; TLI = 0.87; RMSEA = 0.062(90%CI 0.057–0.068), $p < .01$; SRMR = 0.078; Model 2: $\chi^2(491) = 943.970, p < .01$; CFI = 0.89; TLI = 0.87; RMSEA = 0.063(90%CI 0.057–0.069), $p < .01$; SRMR = 0.077). Results show that the probability to belong to the Profile 3 “low SE but high empathic” compared to the probability to be in the “normative” profile significantly increased the risk of lower wellbeing in the shorter (T2) and longer timeframe (T3) above and beyond wellbeing levels at the baseline and the covariates. In addition, results showed that the probability to belong to the Profile 2 “high assertive and task SE but low emotional” compared to the probability to be in the “normative” profile also significantly increased the risk of lower wellbeing in the longer timeframe (T3) but not in the shorter timeframe (T2).

4. Discussion

Taking a multi-dimensional and person-centered approach to work SE, this study demonstrates that the configuration of different work SEs influences how it is protective for wellbeing, rather than high SE within domains, which may in fact constitute a vulnerability. We show that some configurations of SE across differing domains are more likely to be protective of wellbeing than others. Thus, we highlight the benefits of a multi-dimensional approach to SE in understanding important non-performance outcomes at work (e.g., Barbaranelli et al., 2018; Durlak et al., 2011). Furthermore, results progress an understanding of reasons for the absence of protective (and possibility of harmful) effects of high SE (see Schönfeld et al., 2017), by indicating differing combinations of domains of SE and compensatory effects of differing domains over time are likely to produce different wellbeing outcomes.

Compared to the normative cluster, being in Profile 3 (low SE but high empathic) significantly increases the risk of lower wellbeing both in the shorter and longer timeframe. Hence, high empathic SE may not have a protective function when combined with low assertive and general SE, even with medium emotional SE. In contrast, the cluster combination of high task and assertive SE but low emotional and medium empathic SE (Profile 2) increases the risk of lower wellbeing in the longer timeframe but not in the short-term. This SE configuration may be exacerbated by the prolonged nature of COVID-19: vulnerabilities usually compensated by other resources may be insufficient over time. Hence, the protective effects of certain domains of SE may be short-lived if there are deficits in other domains and an ongoing negative work context.

From a practical perspective, assessing individuals' SE profiles could help individuals and organizations determine and target interventions. SE at a time of stress can be protective of wellbeing (Restubog et al., 2020). In this context, the ability to exert SE and control in working independently and effectively is not only likely to be an advantage, but the inability to do this may actually be experienced as a vulnerability (Wang et al., 2021). This is not to suggest that individuals alone are responsible for their SE and the management of stress. Organizations make choices in how they implement working practices and shape the work context; there is much to be learnt from the experience of the pandemic and how the trends in changing work practices it has accelerated should be implemented (Rudolph et al., 2021). Our research underlines the importance of work SE and the need to understand its composition and relationship to wellbeing and for organizations to apply this understanding.

Besides the contributions of our study, some limitations need to be acknowledged. The study was conducted only in one country and on a relatively small sample. Future studies should investigate SE profiles in larger samples to examine the differential effect of COVID-19 critical events on wellbeing for each SE profile. Psychological wellbeing was measured using self-reported scales. Future studies should adopt a multi-method perspective to wellbeing and investigate it by a triangulation of measures (e.g., other ratings, objective indicators). Finally, despite the strengths of the research design and the analytical model we did not measure other variables (e.g., supervisor and colleagues support) that might have affected the relationships between the independent and dependent variables or the dependent variables themselves.

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