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This research focused on the psychological concept of professional isolation, analysing its connection with psychological capital (PsyCap). The moderating role of PsyCap between professional isolation and emotional exhaustion has been less studied. The research questions were: (1) Does professional isolation always lead to emotional exhaustion, and if not, what are the conditions that constrain or enhance the effects of professional isolation? (2) How does PsyCap moderate the relationship between professional isolation and emotional exhaustion? Knowledge workers (N=210) in Finland were asked to participate in a survey measuring their experiences of professional isolation and emotional exhaustion. Correlations and hierarchical regression analysis were conducted. It was found that the relationship between professional isolation and emotional exhaustion was weaker when PsyCap was high compared with the situation when PsyCap was low. The connection with professional isolation appeared complex. The findings encourage investing in further examination of the concept and the PsyCap interventions.

Keywords: professional isolation; emotional exhaustion; psychological capital; knowledge workers; hierarchical regression analysis

1. Introduction

Remote work has undergone changes during the past couple of years, and the need to analyse its impact on work communities and individual workers, as well as work outcomes, has become timelier than ever (see, e.g., Wallin et al., 2020). Work during the COVID-19 pandemic showed that fewer physical encounters and massively increased time spend performing remote work were perceived quite differently among various workers (Kniffin et al., 2021; Mahomed et al., 2022; Odriozola-González et al., 2020; Shaw et al., 2020; Uusiautti et al., 2024; Waters et al., 2021a, 2021b). Although technological changes are not a new phenomenon, the opportunities to work remotely have changed and shaped work in a monumental way (e.g., Cijan et al., 2019).

However, flexible work conditions and new ways of working may have contradictory effects (Van Steenberger et al., 2018). Remote work has been argued to enhance some positive issues, such as increased job satisfaction because of enhanced flexibility and autonomy (Lee and Sirgy, 2019; Virick et al., 2010). Remote work has some concerning sides as well. The remote workers may experience feelings of guilt (Moe and Shandy, 2010), and thus, they may overwork to reciprocate the permitted flexibility (Chesley, 2010). Moreover, remote work may result in higher work–home conflict (Carvalho et al., 2022; Delanoeije et al., 2019) because employees are simultaneously attending to both professional and personal responsibilities.

One of the features of remote work that is under investigation in our article is how remote work may leave workers feeling about out-of-office interactions. The phenomenon of social isolation has its own impact on workplaces (Golden et al., 2008). Social isolation means low or no frequency of contact with friends, relatives or other people. According to Escalante et al. (2021), social isolation has become imperative in the post-COVID-19 world because the way of working and other activities has changed. However, the health effects of social isolation are well known: isolation is associated with, for example, increased rates of loneliness and suicide, along with physical health effects as well (Escalante et al., 2021). Social isolation among professionals refers to professional isolation, in which one feels a lack of critical networks to influence and have social contact (Miller, 1975).

This research was located in Finland where the Covid-19 pandemic presented a drastic change to working life, and the proportion of remote workers increased considerably (Jämsen, Sivunen and Blomqvist, 2022; Pansar, 2023; Sutela, 2021). During the pandemic, a half of the Finnish workers in remote work had no prior

experience of working remotely (Sutela, 2021). Recent surveys in Finland have showed that the majority of remote workers would like continue in this mode (Sutela, 2021).

How does the workers' agency change in the new world of remote work, and how does it support them as their daily work routines change when it comes to social isolation (Van Agteren et al., 2020)? In the present research, we focused on professional isolation as a form of social isolation, analysing its connection with psychological capital. Knowledge workers in Finland were asked to participate in a survey that measured their experiences of professional isolation and emotional exhaustion. In particular, we wanted to know how their levels of psychological capital moderated the connection between professional isolation and emotional exhaustion.

2. Theoretical Background

In this research, the phenomenon of professional isolation, emotional exhaustion and psychological capital is investigated within the framework of job demands and resources theory (Bakker and Demerouti, 2014; Bakker, Demerouti, and Sanz-Vergel, 2014). According to the theory, job demands predict burnout, while job resources help to flourish and succeed at work. Job resources also reduce psychological and physiological job demands, and they can be physical, psychological, social, or organizational. Job demands are more strongly related to burnout than job resources are (Bakker et al., 2014).

From the perspective of our research, professional isolation due to remote work can present job demands leading to emotional exhaustion, even burnout. However, the assumption is that psychological capital may form a psychological job resource that can prevent from emotional exhaustion. Leaning on this theoretical setting, the key concepts

of the current research are professional isolation, emotional exhaustion and psychological capital.

Isolation reflects the feeling of being cut off from others, while professional isolation is a state of mind when one is out of touch with others in the workplace (Diekama, 1992). Although knowledge workers' (or professionals') work is typically autonomous and they may have freedom concerning working methods and practices (e.g., Pyöriä, 2005), in the case of professional isolation, they "are less able to effectively manage interpersonal relationships and interactions with others to coordinate complex and ambiguous tasks and enhance the level of understanding derived from the sharing and refining of tacit knowledge" (Krauss and Fussell, 1990).

Professional isolation is a main concern among remote workers; for example, remote workers have expressed greater feelings of professional isolation compared with their counterparts (Cooper and Kurland, 2002). They have reported limited developmental activities, missed interpersonal networking with other coworkers, lacked informal learning that develops their skills and competencies, and missed mentoring from colleagues and supervisors. Because of professional isolation, they may also feel loneliness and a lack of relatedness, which is one of the main psychological needs to function optimally (Deci and Ryan, 2002). Loneliness may lead to several negative outcomes at the individual level, such as stress, poor health, depressive symptoms (Erzen and Çikrikci, 2018; Hawkley and Cacioppo, 2010), poor quality of life (Theeke et al., 2012) and reduced well-being (Erdil and Ertosun, 2011) because they need to do tasks and perform work activities with only limited collaboration and feedback from others, while the lack of social support takes energy and can lead to exhaustion. In sum, professional isolation is likely to increase burnout and dissatisfaction at work.

In the present research, we use the concept of emotional exhaustion to describe the negative emotional states connected to professional isolation. Recently, Anand and Mishra (2021) showed a positive relationship between loneliness and emotional exhaustion. Emotional exhaustion can be defined as an emotional state at work that describes perceived work-related strain (Gaines and Jermier, 1983). According to Gaines and Jermier's (1983) definition, emotional exhaustion is a dimension of burnout consisting of feelings such as fatigue, frustration and lack of interest. Multiple studies on work during the COVID-19 pandemic have shown how forced remote work increased emotional exhaustion among workers (e.g., D'Souza et al., 2022; Johnson and Mabry, 2022; Phungsoonthorn and Charoensukmongkol, 2022).

However, some workers do well—and even flourish—in various work conditions, including forced remote work. Psychological capital (PsyCap) may be a moderator for perceived emotional exhaustion. PsyCap refers to the awareness of one's strengths and psychological potential (Luthans et al., 2004). It can be seen as an addition to other forms of capital, such as traditional economic capital, human capital, and social capital (Luthans et al., 2007), and it has been especially noted in positive organizational research (Youssef and Luthans, 2013). PsyCap is an interesting concept when analysing the impact of social isolation and emotional exhaustion because PsyCap appears as a person's psychological resource and foundation for well-being (see, e.g., Luthans et al., 2007; see also Uusiautti and Hyvärinen, 2020) in four dimensions: confidence, hope, optimism and resilience (Luthans et al., 2004). PsyCap can be defined as "an individual's positive psychological state of development that is characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering towards goals and, when necessary,

redirecting paths to goals (hope) to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans et al., 2015, p.2).

The fundamental idea of PsyCap is that, when people are aware of their psychological potential, they are more likely to build a positive self-image of themselves as workers, spouses, friends and people in general. Thus, the positive conception of oneself supports confidence and positive agency (Bandura, 2000, 2018): when one is able to identify and use one's potential, one's desired outcomes are more likely to occur and positive self-related experiences accumulate. This also supports a hopeful and optimistic attitude at work (see also Uusiautti, 2016)—especially the realistic optimism based on a true knowledge of one's abilities and potentials (Carver et al., 2010; Manka et al., 2014). As a dimension of PsyCap, resilience means the ability to encounter setbacks and adversities, even difficulties, and recover from them (Luthans et al., 2007; Tugade and Fredrickson, 2004; see also Youssef and Luthans, 2013).

Supported by the literature, PsyCap has a strong predictive power for positive agency and behaviours (see Carter and Youssef-Morgan, 2022; Luthans et al., 2007). As a combination of four core elements, PsyCap is related to improved performance, communication and well-being at work, especially in real-time, face-to-face encounters (Tsuji et al., 2019). However, a comparative study on PsyCap interventions in face-to-face and online workplace encounters showed that there are notable advantages in online environments as well (Carter and Youssef-Morgan, 2022; Meyers et al., 2015). Positive leadership styles can promote employees' performance through their impact on their PsyCap (see Daraba et al., 2021; Pitichat et al., 2018).

In numerous studies, PsyCap has been linked to levels of burnout and stress, and the connection with well-being has been noted as being significant. Research among

workers in isolated workplaces, such as seafarers (Hystad and Eid, 2016) and mineworkers in remote villages, showed a statistically significant negative relationship between exhaustion and all the components of PsyCap (Nel and Kotzé, 2017). The same was evident among academic students in online distance learning situations (Barratt and Duran, 2021). Home-based teleworkers' PsyCap was found to buffer the effects of workplace isolation on negative emotions (Sahai, 2021). A different perspective was introduced in Meseguer de Pedro et al.'s (2021) study: looking at a sample of workers, they investigated the influence of the confinement situation caused by COVID-19 on the levels of self-perceived health and PsyCap. Their research showed that burnout predicted variance in PsyCap.

In all, according to previous research, PsyCap is positively related to numerous positive workplace behaviours and outcomes and is negatively related to, for example, cynicism, stress and anxiety (Avey et al., 2009, 2010, 2011). The setting we are analysing views professional isolation and emotional exhaustion from the perspective of positive agency that PsyCap enhances and the negative causal relationship between professional isolation and emotional exhaustion apparently disrupts positive agency. To build a theoretical foundation for supporting workers' positive agency in remote work conditions, we investigate how PsyCap moderates the connection between professional isolation and perceived emotional exhaustion.

The research questions set for this research were as follows:

(1) Does professional isolation always lead to emotional exhaustion, and if not, what are the conditions that constrain or enhance the effects of professional isolation?

(2) How does PsyCap moderate the relationship between professional isolation and emotional exhaustion?

3. Methods

This was an international survey research. In the present article, we report findings from the Finnish survey part related to the effects of the use of technology and remote work on work and career perspectives. The target groups of the survey were knowledge workers, professionals and managers. By professional, we mean a person who works in a professional field that requires education to the degree level. By managerial, we mean a person who is in a managing position to lead either people or part of the organization.

3.1 Data collection and sample

The sampling method was convenience sampling (Bornstein et al., 2013). The data were collected via online surveys to reach the target groups, and the survey was distributed widely in Finland. The link to the Webropol survey was delivered via HENRY (the Finnish Association for Human Resource Management), Ekonomit (Finnish Business School Graduates, Msc) and LinkedIn. The data were collected from the end of 2020 to the beginning of 2021.

The responses via different channels were as follows: 74 responses (30.3%) via HENRY of those who opened the survey (n=244), 29 responses (55.8%) via Ekonomit of those who opened the survey (n=52) and 107 responses (17.5%) via LinkedIn of those who opened the survey (n=611). The final sample consisted of 210 respondents. Of the respondents, 74.3% were women, 23.3% men and 2.4% other, and most of the respondents had a bachelor's level education (69.0 %). The respondents were mainly full-time employed (88%), while a minority were part-time employed (3%) and self-employed (7%).

3.2 Measures

The measures used were validated scales that have been used in earlier studies. Contrary to other measures used in the international survey, PsyCap was added to the Finnish survey.

Professional isolation was measured using seven items adapted from Golden et al. (2008). The items were measured using scales anchored with rarely (1) and most of the time (5). The reliability and validity of the scale was satisfactory (AVE=0.51; CR=0.88; α=0.87).

To measure PsyCap, we used a 12-item scale adapted from Luthans et al. (2007). Two items were deleted because of the low loadings; thus, the scale consisted of 10 items anchored by totally disagree (1) and totally agree (6). The scale showed satisfactory validity and reliability (AVE=0.46; CR=0.89; α=0.90).

Emotional exhaustion was measured with five items anchored by never (0) and always (6). The scale was adapted from Maslasch and Jackson (1986). The scale showed satisfactory validity and reliability (AVE=0.76; CR=0.94; α=0.94).

We also used several control variables: age, gender, educational background and working experience. These were selected because they are commonly used in work-related research.

3.3 Test of measures

To ensure the validity of the measurement model, a confirmatory factor analysis (CFA) was conducted using Stata 17.0 software. All items showed significant loadings (ranged from 0.54 to 0.90) on their latent variables ($p<0.000$). According to the fit indices, the data showed a good fit with the model ($x^2/df=1.47$; CFI=0.97; TLI=0.96; SRMR=0.06; RMSEA=0.048).

We used two different tests to control for common method variance. First, we applied a single-factor method and compared it with our research model. We found that

the single-factor model showed a poor model fit ($x^2/df=8.33$; CFI=0.45; TLI=0.40; SRMR=0.16; RMSEA=0.19) compared with the research model ($x^2/df=1.47$; CFI=0.97; TLI=0.96; SRMR=0.06; RMSEA=0.048). This result suggests a low common method variance. Second, we applied a marker variable technique (see, e.g., Podsakoff et al., 2003). The technique is based on choosing a theoretically unrelated marker variable that is then included in the analysis. We used nutrition as a marker variable. During the analysis, the inclusion of the marker variable only strengthened the significance levels of the direct effect of social isolation; otherwise, it did not affect the results. According to these tests, common method variance seems to not have threatened the interpretation of the results.

4. Results

Table 1 presents the means, standard deviations, and correlations. The highest correlation between independent variables was found to be the correlation between age and working experience, which is natural. The variance inflation factors (VIFs) ranged between 1.01 and 6.69, so they all remained clearly below the threshold value of 10 (Tabachnick and Fidell, 2007). For hypothesis testing, we used standardized variables.

Table 1. Correlations, means, and standard deviations.

Variable	Mean	SD	1	2	3	4	5
1. Age	48.31	9.84					
2. Educational background	5.85	0.81	0.18				
3. Working experience	23.84	10.01	0.92***	-0.02			
4. Professional isolation	2.73	0.89	-0.20**	-0.14*	-0.26***		
5. Psychological capital	4.8	0.72	0.17*	0.08	0.21*	-0.40***	
6. Exhaustion	2.84	1.21	0.05	-0.05	-0.03	0.24***	-0.38***

* $p\leq0.05$, ** $p\leq0.01$, *** $p\leq0.001$

We used hierarchical regression analysis to empirically test the hypotheses. The results are presented in Table 2. In the first model, we tested the effects of the control variables on emotional exhaustion. The results indicate that the control variables age (β=-0.03, n.s.), educational background (β=0.11, n.s.), working experience (β=0.02, n.s.), and gender (β=0.10; β=-0.45, n.s.) were not associated with exhaustion. In the second model, we added the direct effects of professional isolation and psychological capital on emotional exhaustion. The results revealed that, from the control variables, age (β=-0.04, $p<0.05$) and working experience (β=0.04, $p<0.05$) have statistically significant small effects on emotional exhaustion. From the tested direct effects, professional isolation (β= 0.17, p=0.055) was found to have no direct effect on emotional exhaustion. However, the results show that psychological capital (β=-0.44, $p<0.001$) decreases emotional exhaustion.

Table 2. Results of the hierarchical regression analysis.

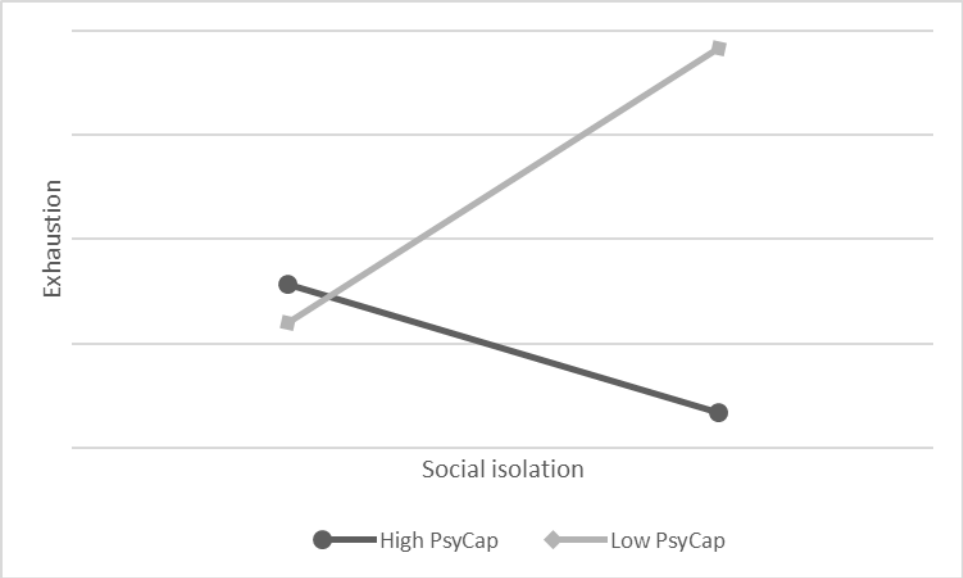
Dependent variable: Exhaustion	**Model 1**	**Model 2**	**Model 3**
Control variables			
Age	-0.03	-0.04*	-0.04
Educational background	0.11	0.15	0.17
Working experience	0.02	0.04*	0.04*
Gender: female			
Gender: male	0.10	0.18	0.15
Gender: other	-0.45	-0.17	0.18
Main effects			
Professional isolation		0.17	0.18*
Psychological capital (PsyCpa)		-0.44***	-0.39***
Moderation effects			
Professional isolation*PsyCap			-0.24***
ΔR^2	0.02	0.18	0.06
R^2	0.02	0.20	0.24
Adjusted R^2	-0.01	0.17	0.21

F	0.72	6.91	7.96

*p<0.05, **p<0.01, ***p<0.001

The third model, which is our main research model, again shows that, from the control variables, only working experience (β=0.04, p<0.05) has a statistically significant effect on emotional exhaustion. The model shows that professional isolation has a direct positive effect on emotional exhaustion (β=0.18, p<0.05), and psychological capital is negatively associated with emotional exhaustion (β=-0.39, p<0.001). Furthermore, the results indicate that psychological capital negatively moderates (β= -0.24, p<0.001) the relationship between professional isolation and emotional exhaustion. Figure 1 graphically demonstrates the moderation effects of psychological capital on the relationship between professional isolation and emotional exhaustion (we used -2 sd for low psychological capital and 2 sd for high psychological capital).

Figure 1. Moderating effects of psychological capital on the relationship between social isolation and exhaustion.



5. Discussion

The aim of the present study was to study the relation between professional isolation and emotional exhaustion among knowledge workers. According to our findings, professional isolation did not always have a direct effect on emotional exhaustion. Instead, PsyCap decreased emotional exhaustion and moderated the relationship between professional isolation and emotional exhaustion. A remarkable finding was that the relationship was weaker when PsyCap was high compared with when PsyCap was low. Next, we discuss the theoretical and practical implications that can be made based on the present research, analysing the limitations and needs for further research.

When it comes to the theoretical contributions of the present study, as far as we know, the moderating role of PsyCap between professional isolation and emotional exhaustion has not been studied before. The fundamental assumption in our approach was that the theoretical connection between these concepts lies in understanding human agency (see, e.g., Bandura, 2000, 2018) and the psychological need for relatedness (Deci and Ryan, 2002), as explained in the theory section. Among knowledge workers, the sense of agency appeared more relevant for their perceived emotional exhaustion, whereas their need for social encounters and sense of community was less important.

From a practical contribution perspective, the present research confirms earlier findings about the importance of PsyCap on emotional and psychological well-being at work. The connection with professional isolation appears more complex. Professional isolation and its effect on the individual worker's perceived experience of emotional exhaustion merely depend on the nature of one's job, work experience and the level of PsyCap. Although professional isolation here represented the unique context at work because of a global pandemic, creating the setting of researching the connections

between PsyCap and emotional exhaustion, the findings provided some important practical information that can also be applied when designing remote work settings and opportunities.

The findings encourage investment in PsyCap interventions, especially in times of drastic changes at work, or as ways to prepare for changes and avoid emotional exhaustion. This notion was also supported by Meseguer de Pedro et al.'s (2021) study. Knowledge workers, especially those with a large amount of work experience, may not suffer from emotional exhaustion because of professional isolation. However, the remote work conditions—being forced to learn to use, for example, new technological tools—can increase emotional exhaustion. High PsyCap helps them adjust to and be optimistic about their chances of coping with the new demands. Our research gave deeper understanding about the forced remote work conditions among knowledge workers and the role of PsyCap in their positive agency at work.

5.1 Limitations and needs for further research

The limitations of the research were that the survey was not directly sent to respondents, but knowledge workers were approached widely via various internet-based channels. Although this ensured a large amount of data, we cannot be certain who answered the survey.

Interestingly, the majority of the respondents were women. This can have an impact on the high scores of PsyCap as the moderator between professional isolation and emotional exhaustion. Namely, in Li et al.'s (2015) and Khalid et al.'s (2020) studies, there was a gender difference in the mediating role of PsyCap on occupational stress–job burnout, suggesting that PsyCap can be a positive resource in reducing the

negative effects of stress, especially among women. The gender aspect presents an interesting need for further studies.

In the present research, we focused on three components: professional isolation, emotional exhaustion and PsyCap. Another further research need would be to study the moderating effect of PsyCap with other components, such as resilience, flourishing or success at work (see also Uusiautti and Hyvärinen, 2020) in remote work conditions.

6. Conclusion

Finnish workplaces have encountered a rapid change during the past few years, which, in a sparsely populated country like Finland, might have also been an advantage. But are the Finnish knowledge workers adjusted to remote work than workers in other cultures? It is easy to think that Finns being familiar with sparsely-populated areas and long distances may present unique aspects to the development of modern, remote workplaces. For example, Rattrie, Kittler, and Paul (2020) found out in their meta-analysis between five global regions that cultural dimensions present a moderating impact towards relationships with job demands and resources. It means that workers' responses to job demands and resources are impacted by their cultural beliefs and habits (Hobfoll, Halbesleben, Neveu and Westman, 2018). This research was located in Finland, that can be considered a Western, individualistic culture, where the emphasis at work is in the need for preserving individual resources (Hobfoll et al., 2018). While our research did not provide a chance to compare the Finnish knowledge workers' experiences with those form other countries, we can only review the knowledge workers' experiences in the light of the Finnish context (Hakanen, Bakker and Jokisaari, 2011). Our findings seem to be in line with other recent studies in the Finnish context that suggest that more focus should be put on the resources on individual work-life

balance and as personalized support in remote work (Pensar, 2023) as well as support for varied relational communication in workplaces (Jämsen et al., 2022).

Well-being among remote workers is a complex phenomenon (Pensar, 2023; Jämsen et al., 2022). It seems that a very important way of supporting it is to boost workers' psychological capital (Carter and Youssef-Morgan, 2022). One way of doing this is to design interventions to increase workers' appreciation of their strengths, which has led to promising results in our latest studies (Haapakoski et al., 2024; Katajisto et al., 2021).

The modern workplace needs new approaches to well-being, and the traditional views of support do not match the new demands work set on employees. Emotional exhaustion because of professional isolation is a phenomenon of modern work that needs more serious attention in the workplace.

7. Disclosure Statement

The authors report that there are no competing interests to declare.

8. Data Availability Statement

Restrictions apply to the availability of these data.

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