



Adapt to Survive? Attenuating Indirect Effects of Career Adaptability on Exhaustion via Career Insecurity

DANIEL SPURK** 

ANNABELLE HOFER** 

SIMONE KAUFFELD 

LUISA BARTHAUER

NORA NIXON

**Author affiliations can be found in the back matter of this article*

***Both the authors contributed equally*

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ABSTRACT

The present study analyzed whether career adaptability is negatively related to exhaustion. Based on the conservation of resources theory, we argue that career insecurity is a connecting variable in the link between career adaptability and exhaustion. We tested our assumptions using latent structural equation modeling across three measurement points (time-lagged design, 2-year time span altogether) with data from 885 young researchers (doctoral students and post-docs) in Germany working in different disciplines. The results showed that career adaptability (T1) was negatively related to career insecurity (T2), which subsequently was positively associated with exhaustion (T3). Moreover, exhaustion (T3) was indirectly affected by career adaptability (T1) via career insecurity (T2). We discuss these results against the background of the conservation of resources and career construction theory and its implications for future career and stress research and practice.

CORRESPONDING AUTHOR:

Daniel Spurk

University of Bern, Institute of
Psychology, Switzerland

daniel.spurk@unibe.ch

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Career construction is an approach to career development that focuses on how individuals construct their careers through personal meaning and adaptation to changing work environments (Savickas et al. 2009). Career construction has become increasingly challenging due to changing labor markets, external events (e.g., COVID-19), societal changes, digitization, and individual changes in career attitudes (Akkermans & Kubasch 2017; Akkermans, Richardson & Kraimer 2020). Furthermore, recent models on sustainable careers highlight the role of happiness, health (e.g., absence of exhaustion), and productivity as central outcomes within career development (De Vos et al. 2020). In this context, career adaptability is more than ever an essential personal resource, which is reflected in a substantial amount of research in the past decade (Rudolph, Lavigne, & Zacher 2017; Savickas et al. 2009).

Career adaptability is a multifaceted psychosocial resource reflecting a person's ability to cope with career-related changes and traumas through concern, control, curiosity, and confidence (Savickas et al. 2009). Career concern is the ability to think about and plan a career. Individuals with high concern anticipate career challenges, set goals, and prepare for change rather than reacting passively (Savickas et al. 2009). Career control is the ability to take responsibility for one's career decisions. People with strong control believe they can shape their careers through proactive choices and self-discipline, reducing feelings of helplessness (Savickas et al. 2009). Career curiosity is the tendency to explore different career options and possibilities. Curiosity helps individuals seek new learning experiences, consider alternative career paths, and stay open to innovation and change (Savickas et al. 2009). Career Confidence is the belief in one's ability to overcome obstacles and achieve career goals. Confidence enables individuals to persist in the face of setbacks, reinforcing adaptability in uncertain situations (Savickas et al. 2009).

These four dimensions form a self-reinforcing system: Concern motivates individuals to engage in career planning, control ensures active decision-making, curiosity expands options, and confidence provides the resilience needed to navigate career challenges. Strengthening all four dimensions enhances overall career adaptability, making individuals better equipped to manage transitions and prevent burnout.

Career adaptability is positively related to satisfaction and performance and negatively associated with work stress and turnover intentions (Johnston 2018). While a positive relationship between career adaptability and well-being (e.g., life satisfaction and self-rated health) has been shown in some time-lagged studies (Johnston 2018), but such studies are missing to examine the relation between career adaptability and exhaustion (Haynie, Flynn, & Herda 2020; Kvasková et al. 2023). Career adaptability has emerged as a crucial factor in predicting burnout among individuals in various professional settings (Cotter & Fouad 2013; Doğanülkü & Kirdok 2021; Zhao et al. 2023).

The existing body of research consistently underscores a significant negative association between career adaptability and burnout, positioning career adaptability as a pivotal resource in mitigating the risk of burnout. However, despite the established link between career adaptability and burnout, there is a notable gap in our understanding of the underlying mechanisms that drive this relationship. In other words, the specific pathways through which career adaptability relates to burnout outcomes remain largely unexplored. Unraveling the nuanced mechanisms at play in this relationship is essential for developing targeted interventions and strategies to enhance career adaptability to prevent or alleviate burnout. To better understand those mechanisms, time-lagged designs are essential to understand the temporal structure of the relationships better.

As the central dimension of burnout, exhaustion is defined as a state of resource depletion caused by intensive physical, affective, and cognitive strain (Demerouti et al. 2003). This pervasive sense of depletion relates an individual's well-being and can have profound implications for their professional trajectory. It has been observed that exhaustion is related to career changes, such as turnover, which potentially has negative consequences for both individuals and organizations (Maslach 2017). In contemporary discussions among researchers emphasizing the utmost importance of sustainable careers (De Vos et al. 2020), understanding the intricate mechanisms through which personal career resources can protect persons from becoming exhausted becomes crucial.

To link career adaptability and exhaustion, we draw upon the conservation of resources (COR) theory (Hobfoll 1989; Hobfoll et al. 2018) and consider career insecurity a career-related stressor. We decided to focus on career insecurity as a career-related stressor for several reasons. First, career insecurity is specifically crucial against the background of changing labor markets, external events (e.g., COVID-19), societal changes, digitization, and individual changes in career attitudes. Thereby, it can be well aligned to factors that are triggering career construction (Spurk, Hofer, & Kauffeld 2021). Second, we decided to choose an explaining variable with the same specificity level (here career) compared to the predictor career adaptability and the theoretical background of career construction. Third, there exists less research on predictors of career insecurity. Past research has highlighted the significance of career insecurity but has primarily focused on its consequences rather than its predictors (Spurk et al. 2022). There remains a need for further research to expand the nomological network of career insecurity by identifying key antecedents and mechanisms (Spurk et al. 2022). Understanding these factors is crucial for developing a more comprehensive theoretical framework and informing interventions to mitigate career insecurity (Spurk et al. 2022). Career

adaptability has been identified as a crucial individual resource for managing career-related challenges and transitions. Given its role in enhancing proactive coping strategies, career adaptability may be a key predictor of career insecurity (Spurk et al. 2016). Individuals with higher career adaptability are better equipped to navigate insecurity and respond flexibly to labor market changes. Understanding the relationship between career adaptability and career insecurity and the mediating role of career insecurity in the relationship between career adaptability and exhaustion is essential for developing targeted interventions that foster career adaptability, prevent career insecurity, and reduce the negative impacts of career insecurity. By linking career adaptability to career insecurity, a further contribution to the field of career construction can be made.

Recent research showed that career insecurity was measured as a one-dimensional and multi-dimensional construct (Spurk et al. 2022). Moreover, career insecurity can be seen—similar to job insecurity—as a stressor that negatively relates to a person's well-being (Spurk et al. 2022). Although career insecurity is like job insecurity regarding the subjective insecurity at the construct's core, it is nonetheless different because of the themes and topics the insecurity is about (Spurk et al. 2022). Career insecurity perceptions are about career developmental issues and not specific aspects of the current job (Spurk et al. 2022). In other words, while job insecurity is a concept with an organizational focus (Shoss 2017), career insecurity has a broader perspective reflecting the insecurity of following a chosen career path (cf., Höge et al. 2012; Spurk et al. 2022). One-dimensional career insecurity subsumes a feeling of powerlessness to reach set career goals, not seeing one's own career as predictable, or maintaining the chosen career path (Höge, Brucculeri, & Iwanowa 2012; Spurk et al. 2016). Empirical evidence suggests a positive relationship between job insecurity and burnout (Shoss 2017). However, only little is known about the relationship between career insecurity and burnout (Spurk et al. 2022; Wielers, Hummel, & van der Meer 2022). However, such an investigation provides an interesting angle on how career-related stressors affect mental health, a central indicator of sustainable career development. Our study, therefore, offers an opportunity to embed knowledge about career insecurity within the larger field of insecurity at work (de Witte et al. 2016; Shoss 2017). This provides critical implications for future research on insecurity-related concepts, such as career insecurity (Spurk et al. 2016; Spurk et al. 2022), job insecurity (Sverke, Hellgren, & Näswall 2002; Sverke et al. 2019), and occupation insecurity (Roll, De Witte, & Wang 2023).

Against this backdrop, this study aims to investigate the relationship between career adaptability and exhaustion. We argue that career adaptability is negatively related to career insecurity, which in turn channels the indirect relationships between career adaptability and exhaustion.

By doing so, we expand former research on career adaptability within the domain of health and sustainable careers. Based on the COR theory (Hobfoll 1989; Hobfoll et al. 2018), we propose an indirect relationships model: Career adaptability, as a personal career resource for sustainable careers, negatively relates to strain reactions (i.e., exhaustion) via negative relationships with career-related stressors (i.e., career insecurity).

THEORETICAL BACKGROUND

Looking at careers from a life span perspective, health problems can be a major reason for different transition points, either contributing to a sustainable career or not (Barthauer et al. 2020; De Vos et al. 2020). As an indicator of health-related issues, exhaustion is related to impaired health (Maslach 2017). It can lead to career changes (e.g., turnover) with possibly drastic consequences for both individuals and organizations (Maslach 2017). According to COR theory, stress arises as resources are lost or threatened (Hobfoll 1989). Hobfoll (1989) classifies different kinds of resources, such as personal (e.g., self-esteem) or conditional resources (e.g., job security). According to this classification, career adaptability is a personal career resource that fits well within the COR theory. Furthermore, career insecurity can be classified as a career-related stressor based on the threat of a human's basic need for security (Spurk et al. 2016; Spurk et al. 2022). According to the second principle of COR theory (Hobfoll et al. 2018), personal career resources, such as career adaptability, can help people experience lower stressors, such as career insecurity.

Equipped with the resource of career adaptability, a person will feel confident and ready for any changes in their chosen path. Thus, a person with high career adaptability is more likely to reconcile professional and private matters in a comprehensive self-concept experiencing less career insecurity and exhaustion. We argue that the personal resource of career adaptability should be related to lower levels of career insecurity and exhaustion (Hobfoll 1989; Hobfoll et al. 2018). First studies using career adaptability as a predictor of burnout support our theoretical argument for a negative relationship between career adaptability and exhaustion (Cotter & Fouad 2013; Doğanülkü & Kirdok 2021; Zhao et al. 2023). Research on career adaptability and career insecurity is scarce: One study has shown negative relationships between career adaptability and career insecurity (Spurk et al. 2016). Aligning with their findings and the theoretical assumptions, we propose that workers who feel adaptable, meaning they feel confident and in control of their career development, are less likely to perceive career insecurity and exhaustion.

Hypothesis 1: Career adaptability (T1) is negatively related to exhaustion (T3).

Hypothesis 2: Career adaptability (T1) is negatively related to career insecurity (T2).

We argue that in line with the COR theory, a person experiencing career insecurity deals with a career stressor that can be perceived as a threat and potentially result in resource loss. Facing a stressor, threatening the basic human need for security, likely leads to strain and finally exhaustion (Spurk et al. 2022). Moreover, resource loss is highly demanding and energy-consuming, therefore, individuals might be directly confronted with exhaustion because of resource depletion. Perceived career insecurity is not only psychologically demanding but also has direct consequences on individuals' engagement and energy levels at work.

At the job level, career insecurity may lead to diminished motivation and engagement in one's current role. Employees who feel uncertain about their career progression may withdraw effort, reducing their investment in skill development, collaboration, and job performance (Spurk et al. 2022). This disengagement stems from a self-protective mechanism—rather than expending effort in a job (as part of the career) that may result in undesired outcomes for their career, and individuals may emotionally distance themselves from the current job.

Moreover, career insecurity might result in heightened job-related vigilance, where individuals become hyper-aware of potential career threats associated with the current job (e.g., job loss, missed promotions, and declining industry demand; Spurk et al. 2022). This state of constant monitoring and uncertainty is mentally draining, contributing to cognitive overload, emotional fatigue, and eventually exhaustion.

Past empirical research in other insecurity domains supports this reasoning by showing that job insecurity is positively related to exhaustion (cf. review by De Witte et al. 2016). Based on COR theory, stress approaches, and past research on career and job insecurity, we assume detrimental relationships between career insecurity and exhaustion:

Hypothesis 3: Career insecurity (T2) is positively related to exhaustion (T3).

Taking the assumptions together, people equipped with resources are less likely to suffer negative health outcomes because they perceive lower levels of career insecurity. Such assumptions, which are in line with resource (loss) caravans within COR theory, result in the following indirect relationship hypothesis:

Hypothesis 4: Career adaptability (T1) has a negative indirect relationship with exhaustion (T3) through career insecurity (T2).

METHODS

SAMPLE AND PROCEDURE

Data was collected via a time-lagged online survey (2014–2016; 1-year interval between each measurement point) as part of a research project focusing on academic careers. Academia offers a well-suited background to test our model because it is, per se, a highly competitive, insecure, and unstable environment (i.e., temporary, part-time contracts; a limited number of chairs; Zacher et al. 2019). The participants were young researchers (PhD candidates and post-docs). PhD candidates at German universities are mainly employed as regular staff members in fixed-term contracts (e.g., for the duration of a project or to a maximum of 6 years of federal employment plus an additional 6 years after obtaining their PhD). Therefore, besides their base research, they are mostly exposed to a large degree of integration in teaching and administrative tasks. Postdocs are also mainly employed in fixed-term contracts until they reach an associate/full professorship, or assistant professorship with a tenure track.

From 987 academic scientists, 102 cases with missing data on all study variables had to be excluded. The final sample consisted of $N = 885$ participants. The gender distribution within the sample was nearly equal (men: $N = 424$; women: $N = 461$). The mean age was 33.53 years ($SD = 5.70$). More than half of the participants were postdocs ($N = 541$), while 38.9% were about to finish their doctorate. The attrition rate between the measurement points was 26%–29% ($n_{T2} = 652$; $n_{T3} = 461$). The dropout analysis revealed no difference regarding age, career stage, and career adaptability, but a difference for gender ($t(883) = -2.28$, $p = -0.023$), suggesting that female participants were more likely to stay in the panel.

MEASURES

All study variables were measured by valid and reliable scales using a 6-point rating scale to indicate individual agreement (1 = *strongly disagree*; 6 = *totally agree*). To assess reliability, we calculated Cronbach's α and the composite reliability, following best-practice recommendations by Cheung et al. (2024). Cronbach's α of all applied scales are shown in Table 1. Cronbach's α ranged from 0.81 (career insecurity T2) to 0.93 (career adaptability T1), highlighting adequate reliability as Nunnally (1978) recommended a reliability standard of 0.80. Following the recommendations (Hair et al. 2010), composite reliability values should be at a minimum of 0.70. All composite reliability values exceeded 0.70 (career adaptability T1: 0.89, career insecurity T2: 0.81, and exhaustion T3: 0.85), indicating good reliability.

We used the German version of the career adaptability scale (Johnston et al. 2013) with its four subscales (concern, curiosity, control, and confidence) and a total of

VARIABLE	M	SD	1	2	3	4	5	6
1. Gender (T1)	0.52	0.50	–					
2. Career stage (T1)	0.61	0.49	0.03	–				
3. Work hours (T1)	44.30	9.83	–0.21**	0.09**	–			
4. Career adaptability (T1)	4.93	0.59	0.07*	–0.03	0.10**	0.93		
5. Career insecurity (T2)	4.06	1.22	0.10*	0.08*	–0.04	–0.17**	0.81	
6. Exhaustion (T3)	3.20	0.91	0.04	–0.12*	0.10*	–0.22**	0.31**	0.84

Table 1 Means, standard deviations, reliabilities, and correlations among study variables.

Note. Career stage: 0 = no PhD, 1 = PhD; Gender: 0 = male, 1 = female; $N_{T1} = 885$; * $p < 0.05$; ** $p < 0.01$ (one-tailed).

24 items to measure career adaptability at T1. It measures the concept of career adaptability, first operationalized by Savickas and Porfeli (2012). An example item is ‘I am capable of developing my skills’. The internal consistency for the scale was $\alpha = 0.93$. We conducted a CFA with a second-order factor. To reach a satisfying model fit, one correlation between items within the subscale concern and two correlations within the subscale confidence had to be allowed (final model: $\chi^2(245) = 744.71$, $p < 0.001$; CFI = 0.94; RMSEA = 0.05; SMR = 0.04).

For measuring *career insecurity* at T2, we used a German scale developed by Höge et al. (2012), which assesses the construct by four items (e.g., ‘I am not sure whether I shall achieve my career aims’; ‘I consider my professional development to be secure’ (recoded)). The one-dimensional scale showed convergent associations to, for example, job insecurity and perceived job opportunities and was successfully applied in the academic context (Höge, Brucculeri, & Iwanowa 2012; Spurk et al. 2016). Cronbach’s α was fine with $\alpha = 0.81$. The CFA for career insecurity reached a good model fit ($\chi^2(2) = 5.40$, $p = 0.07$; CFI = 0.99; RMSEA = 0.05; SMR = 0.01). We used the Oldenburg Burnout Inventory (Demerouti et al. 2003) to measure *exhaustion* with eight items at T3. An example item is ‘I have the feeling of being emotionally exhausted more frequently at work’. The internal consistency of the scale was good ($\alpha = 0.84$). The conducted CFA showed a high correlation for two recoded items of the scale, which we allowed to correlate to reach an acceptable model fit (final model: $\chi^2(19) = 112.86$, $p < 0.001$; CFI = 0.91; RMSEA = 0.10; SMR = 0.05). We controlled for *gender*, *working hours* (open text field), and *career stage* (i.e., PhD yes vs. no) at T1, guided by past empirical results (Höge, Brucculeri, & Iwanowa 2012; Maslach, Schaufeli, & Leiter 2001): In past research, female participants were found to report higher exhaustion and career insecurity, and so did younger participants regarding career insecurity and exhaustion. Working hours should be negatively related to career insecurity and positively associated with exhaustion.

DATA ANALYSIS

We used SPSS 25 for descriptive statistics. For testing the hypotheses, latent structural equation modeling in

Mplus 8 was conducted (Muthén & Muthén 1998–2017). We chose this approach to test all parameters as well as indirect effects simultaneously. To account for missing data on some cases on some variables and to avoid unstable parameter estimation, we used a robust full information maximum likelihood approach (MLR; Muthén & Muthén 1998–2017). The standard errors using the MLR estimator are already stable so no bootstrapping was needed. Based on a reviewer’s comment, we included the results with bootstrapping by analyzing our hypothesized model using maximum likelihood (ML) as an estimator.

RESULTS

We used two frequently applied approaches to test the discriminant validity: CFA model comparisons and related Satorra–Bentler scaled- $\Delta\chi^2$ -test and the Fornell–Larcker (1981) test. First, regarding the CFAs, we compared a one-factor model where all items of all variables are loaded on one general factor with the theoretically assumed factorial structure. The one-factor model showed no acceptable fit to the data ($\chi^2(594) = 5356.80$, $p = 0.00$; CFI = 0.57; RMSEA = 0.10; SRMR = 0.12). The final model with separated scales showed an acceptable fit to the data ($\chi^2(583) = 1442.70$, $p < 0.000$; CFI = 0.92; RMSEA = 0.04; SRMR = 0.05) and the Satorra–Bentler scaled- $\Delta\chi^2$ -test supported better fit over the one-factor model. Comparing the results of the models with and without control variables revealed stable effects regarding the hypotheses; therefore, we report the effects of the parsimonious model without controls.

Second, we conducted the Fornell–Larcker (1981) test, which examines the average variance extracted (AVE) of the factor indicators by its underlying latent construct (i.e., career adaptability, career insecurity, and exhaustion). A latent construct (e.g., career adaptability T1) should explain more variance in its own indicators than in other constructs (e.g., career insecurity T2). Moreover, the AVE should be larger than 0.50 to show that the latent construct explains more variance in its indicators compared to measurement error. In all

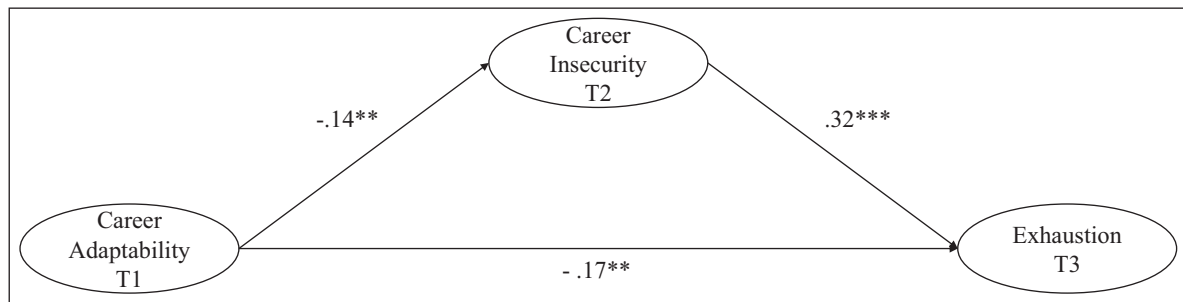


Figure 1 Effects of career adaptability on exhaustion via career insecurity.

Note: $N = 885$; $*p < 0.05$. $**p < 0.01$. $***p < 0.001$. Standardized path estimates are reported. The indirect effect was significant $\beta = -0.05$, $p = 0.015$).

Fornell–Larcker tests, the AVE was above 0.50 (career adaptability T1: 0.82, career insecurity T2: 0.72, and exhaustion T3: 0.63). In all cases, these AVE values exceeded the squared correlations of the construct with the other two constructs, supporting the discriminant validity of the three constructs. The results from the CFA model comparisons and the Fornell–Larcker test supported discriminant validity.

DESCRIPTIVE RESULTS

Table 1 provides an overview of means, standard deviations, and correlations. The highest correlation was between career insecurity T2 and exhaustion T3 ($r = 0.31$). Furthermore, career adaptability T1 was negatively related to career insecurity T2 ($r = -0.17$) and exhaustion T3 ($r = -0.22$). Additionally, the positive relation for working hours with career stage ($r = 0.09$) suggests that postdocs tended to work longer hours than those still working on their doctorate. Working hours were negatively related to gender ($r = -0.21$), saying that men reported higher working hours than women. Furthermore, women reported higher career adaptability T1 ($r = 0.07$) and career insecurity T2 ($r = 0.10$).

HYPOTHESES TESTING

In the following, we present the results without bootstrapping and with bootstrapping (Figure 1). We applied a bootstrapping procedure with 5000 samples. The results of the structural equation modeling showed a significant negative coefficient from career adaptability T1 to exhaustion T3 ($\beta = -0.17$, $p = 0.003$; -0.17 , $CI_{95\%} = [-0.279, -0.048]$). Supporting Hypothesis 1, individuals who reported higher levels of career adaptability at T1 reported lower levels of exhaustion at T3 two years later. Furthermore, individuals who reported higher levels of career adaptability at T1 felt less insecure about their career one year later at T2 ($\beta = -0.14$, $p = 0.009$; -0.14 , $CI_{95\%} = [-0.247, -0.029]$), supporting Hypothesis 2. Supporting Hypothesis 3, the model revealed a significant positive coefficient from career insecurity at T2 to exhaustion at T3 ($\beta = 0.32$, $p < 0.001$; 0.32 , $CI_{95\%} = [0.203, 0.420]$), meaning that individuals who reported higher levels of career insecurity at T2 tended to show higher levels of

exhaustion at T3 one year later. Finally, the estimated model showed a significant indirect effect. Exhaustion at T3 was indirectly negatively affected by career adaptability at T1 via the participants' career insecurity at T2 ($\beta = -0.05$, $p = 0.015$; -0.05 , $CI_{95\%} = [-0.086, -0.010]$), supporting Hypothesis 4. In sum, individuals exhibiting elevated levels of career adaptability demonstrated lower levels of career insecurity, ultimately experiencing lower levels of exhaustion. The explained variance was $R^2 = 0.14$ for exhaustion (T3) and $R^2 = 0.02$ for career insecurity (T2).

ADDITIONAL ANALYSES

The model, including the controls (i.e., working hours, career stage, and gender), did not change the effects reported above ($\chi^2(687) = 1798.35$, $p = 0.00$; CFI = 0.90; RMSEA = 0.04; SRMR = 0.06). Working hours were positively related to exhaustion at T3 ($\beta = 0.15$, $p = 0.004$). Career stage was negatively related to exhaustion at T3 ($\beta = -0.18$, $p = 0.000$) and had no significant relationship with career insecurity at T2 ($\beta = 0.07$, $p = 0.124$). Participants still working on their doctorate and reporting higher working hours tended to be more exhausted two years later. Gender was positively related to career adaptability T1 ($\beta = 0.09$, $p = 0.016$) and to career insecurity T2 ($\beta = 0.10$, $p = 0.029$), but not to exhaustion T3 ($\beta = 0.08$, $p = 0.084$).

EXPLORATORY MODERATION ANALYSIS

Due to the suggestion of an anonymous reviewer, we tested a moderation analysis to rule out potential other models. In this post hoc model, we tested if the positive relationship between career insecurity at T2 and exhaustion at T3 is weaker for workers with high levels of career adaptability at T1. However, the interaction effect between career insecurity T2 and career adaptability T1 on exhaustion T3 was not significant ($\beta = -0.002$, $p = 0.976$). Therefore, the post-hoc moderation assumption was not supported in our study.

DISCUSSION

This study aimed to investigate the relation between career adaptability and exhaustion, including an

explaining mechanism (i.e., career insecurity). Taken together, the results supported the hypothesized model and enriched past research on potential predictors of exhaustion. Specifically, the results contribute to a better understanding of one potential mechanism explaining the link between career adaptability and exhaustion. Overall, the study contributes to the extant career adaptability, career insecurity, and exhaustion literature because it extends the research of possible relations between career adaptability and exhaustion, investigating the variables of interest in a sample of PhD students and postdocs in Germany.

THEORETICAL IMPLICATIONS

Taken together, both career-related concepts (i.e., career adaptability and career insecurity) explained a relatively large amount of variance of exhaustion, pointing toward the practical relevance of the findings for the management of sustainable careers. In contrast, the relatively small amount of explained variance in career insecurity indicates the complexity of predicting career insecurity and calls for a deeper view into possible predictors of career insecurity.

As suggested by recent research on career success (Spurk, Hirschi, & Dries 2019), the COR theory (Hobfoll 1989) seems to be a well-suited theory within the context of career development, here specifically for predicting the health aspect within sustainable careers (De Vos et al. 2020). As we can show, career resources (e.g., career adaptability) can contribute to lower career-related stressors (e.g., career insecurity) and potentially improve mental health as an essential indicator for a sustainable career. In line with the conceptual framework by Rudolph et al. (2017), which is based on the career construction model of adaptation (Savickas 2005; Savickas et al. 2009; Savickas & Porfeli 2012), we highlighted that career adaptability is a vital personal career resource. We shed light on career adaptability's relevance toward exhaustion, which can be seen as an adaptation result.

Besides contributing to careers research, this study also advances our understanding of insecurity in the workplace by highlighting the impact of career insecurity as a distinct yet related construct to job insecurity (Spurk et al. 2022). While job insecurity primarily concerns the threat of job loss, career insecurity reflects uncertainty about mid- to long-term career prospects, employability, and professional growth. Our findings suggest that, beyond job insecurity, other forms of career-related insecurity can significantly impact health-related outcomes, such as exhaustion. This underscores the importance of broadening workplace insecurity research to include career-related concerns, particularly in rapidly evolving job markets where employees must continuously adapt to structural changes, industry shifts, and skill demands.

Finally, the research also contributes to models of the career development of academic scientists, especially

young scholars within the PhD and postdoctoral stages. Past research already mentioned that such careers are faced with higher levels of insecurity (Höge, Brucculeri, & Iwanowa 2012) and that adaptability (Baruch & Hall 2004) might be a core competency within such careers. The results of the current study support such models and highlight the role of career adaptability and career insecurity in understanding the careers of young scholars.

LIMITATIONS AND FUTURE RESEARCH

While the results generally support the hypotheses, there are also some limitations of the study. First, the generalizability of our findings is limited. Even though this study sampled employed people, research shows a relationship between education, cognitive abilities, and career adaptability (Rudolph, Lavigne, & Zacher 2017). We studied the relationships in a sample of German academic scientists (i.e., PhD candidates and PhD holders/postdocs) representing a highly educated workforce (Baruch & Hall 2004; Lange et al. 2017). At German universities, PhD candidates and postdocs are mainly employed as regular staff members holding fixed-term contracts, which is directly linked to several objective insecurities and subjective experiences of job and career insecurity. They are exposed to a row of system-inherent problems, which lead to high insecurity and high levels of competition (Kreckel 2016; Spurk, Hofer, & Kauffeld 2021; Vilser et al. 2022). As a career in academia can be highly stressful, it is a particularly relevant context to study insecurity perceptions and resources. Based on the objective insecurities and many stressors, it can be assumed that academics show higher levels of insecurity than workers outside academia with permanent contracts. Our results are comparable to other studies using the same measure to operationalize career insecurity (i.e., the items developed by Höge et al. 2012), investigating academic staff's career insecurity in countries such as Austria, Germany, and the UK (Alisic & Wiese 2020; Höge, Brucculeri, & Iwanowa 2012). Employees tend to show lower career insecurity levels than academic staff (Colakoglu 2011; Spurk et al. 2022). Taken together, in line with past recommendations by Spurk et al. (2021), results from academic samples should not be generalized without caution to other samples outside academia.

The second limitation is linked to the study design. We choose a time lag of about a year in the underlying project to map academic careers over a longer period. For future research, theorizing shorter lags might be of interest following the research of Zacher (2015) reporting daily changes in adaptability responses. Moreover, while time-lagged design effectively capture temporal sequences, their ability to fully elucidate the dynamic interplay of variables over an extended period is somewhat limited. Recognizing the strengths and limitations of such designs, a complete longitudinal approach involving multiple measurement points can provide a more nuanced understanding of

developmental trajectories. This comprehensive design is particularly valuable for identifying critical turning points and unraveling complex relationships across time. Related to this, although our study had three measurement points, it still represents a correlational study, and therefore, the results should not be interpreted causally.

Third, the present study did not control for job insecurity or other directions of causality. Future research could investigate the differential and competing effects of career and job insecurity on work-related outcomes in more detail. A recent study by Spurk and colleagues (2022) already showed that career insecurity can explain additional variance in outcome variables beyond job insecurity (also for well-being outcomes). Another study by Steindórsdóttir et al. (2024) tested a model where emotional exhaustion relates to career insecurity. Although this is not in line with COR theory, and exhaustion is typically seen as an outcome of stressors and resource loss, such studies show that disentangling the direction of effects might make sense in future studies.

Fourth, a further limitation of this study is that career insecurity and quantitative job insecurity in our sample may not be entirely distinct. Given that PhD candidates and postdocs are typically on fixed-term contracts, job insecurity is inherently high, making it difficult to fully disentangle the specific effects of career insecurity. While our study focused on career insecurity as a stressor, it is possible that its impact on exhaustion may have been slightly influenced by underlying quantitative job insecurity concerns. Past research highlighted that career insecurity is positively related to job insecurity (Spurk et al. 2016; Spurk et al. 2022). However, it is possible to show conceptual differences, discriminant validity, and incremental validity of the two constructs (Spurk et al. 2022).

FUTURE RESEARCH INTEGRATING CAREER AND JOB INSECURITY

The relationship between career insecurity and exhaustion may be influenced by employment type, particularly when comparing fixed-term and permanent employees. For individuals in fixed-term positions, career and job insecurity may overlap more strongly than they do for permanent employees. This is especially evident in fields such as academia, where uncertainty about contract renewal can directly trigger career insecurity, forcing individuals to reevaluate their long-term professional trajectories (Spurk et al. 2022). The lack of job stability itself might become a career stressor, leading to heightened strain and exhaustion as employees must continuously search for alternative career options.

In contrast, permanent employees may experience career insecurity without immediate job insecurity. For example, they may feel uncertain about their career progression, skill relevance, or industry stability, even though their current position is secure (Spurk et al. 2022;

Sverke et al. 2019). While this type of insecurity can still lead to resource depletion and disengagement, its impact on exhaustion may differ from that of fixed-term employees, who face immediate job-related stress and long-term career insecurity.

To sum up, the extent to which career insecurity translates into exhaustion may depend on whether individuals are also experiencing job insecurity. Future research could explore whether job insecurity moderates the relationship between career insecurity and exhaustion, providing a more nuanced understanding of how different worker populations navigate career-related stressors. Moreover, future research could further investigate the specificity of the sample by examining contexts where the overlap between career insecurity and job insecurity is less pronounced. It would be valuable to explore whether the relationship between career insecurity and exhaustion shows comparable effects in populations where high levels of one construct do not automatically coincide with high levels of the other (e.g., in the public sector with low quantitative job insecurity and long organizational tenure). Moreover, controlling job insecurity in settings where a strong correlation between both constructs is anticipated may allow for a more precise understanding of the unique effects of career insecurity. By doing so, future studies could shed light on how distinct types of insecurity interact and their respective impacts on well-being, thereby providing a clearer picture of the mechanisms that drive stress in different occupational contexts.

PRACTICAL IMPLICATIONS

Adding to the research suggesting career adaptability is an essential personal resource (Rudolph, Lavigne, & Zacher 2017), our study shows career adaptability's relevance toward exhaustion. Furthermore, in the context of insecurity, adaptability is a resource that can supply individuals with more effective coping and more confidence (Spurk et al. 2016). We pinpointed a personal resource that, over time, reduces the risk of exhaustion and shapes an individual's view to feel less insecure. Being equipped with this resource can potentially play a role in staying healthy via lower levels of exhaustion. Strengthening people's career adaptability seems like a fruitful prevention approach. Koen et al. (2012) showed successful training for enabling smoother school-to-work transition via career adaptability resources. Such training can help people uncover their adaptability resources, enabling them to cope actively with challenges in their careers. We need more programs to evaluate the effects of training career adaptability and its effects within the context of employees pursuing an academic career. Training and coaching could be considered in graduation programs to reveal and strengthen career adaptability (Wright & Frigerio 2015). Future research should, therefore, develop, implement, and systematically evaluate career adaptability interventions and their consequences.

CONCLUSIONS

This study represents a significant contribution to the field of insecurity research at the workplace, as it showcases that career insecurity can be seen as an additional important insecurity variable in the workplace. Our findings provide valuable insight into the antecedents and outcomes of career insecurity, a construct related but distinct to job insecurity. Especially within young scholars' careers, dealing with career insecurity and showing career adaptability seem important for developing a sustainable career.

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The authors have no competing interests to declare.

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AUTHOR AFFILIATIONS

Daniel Spurk  orcid.org/0000-0002-5865-108X

University of Bern, Institute of Psychology, Switzerland

Annabelle Hofer  orcid.org/0000-0001-6759-1755

University of Cologne, Department Corporate Development, Germany

Simone Kauffeld  orcid.org/0000-0002-4158-5266

TU Braunschweig, Institut für Psychologie, Germany

Luisa Barthauer

TU Braunschweig, Institut für Psychologie, Germany

Nora Nixon

TU Braunschweig, Institut für Psychologie, Germany

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