How does job insecurity relate to self-reported job performance? Analysing curvilinear associations in a longitudinal sample

Eva Selenko¹, Anne Mäkikangas², Saija Mauno²³, & Ulla Kinnunen³

¹ Eva Selenko is now with the Institute of Work Psychology, University of Sheffield, United Kingdom.
² University of Jyväskylä, Department of Psychology, P.O.Box 35, FIN-40014 Finland
³ University of Tampere, Department of Psychology, 33014 Tampere, Finland

A final and authorized version of this paper has been published as:


This paper may not exactly replicate the final version.
Abstract

The study focuses on the relationship between job insecurity and self-reported job performance. Based on theoretical, empirical and statistical arguments, we propose that this relationship is U-shaped and mediated by vigour at work. This assumption was tested cross-sectionally and across two measurement points, and against two alternative explanations, namely that the U-shaped relationship might be due to the influence of the moderators optimism and supervisory support. The findings of a study among a large group of job-insecure employees of two Finish universities (n = 2,095) confirm the U-shaped effect of job insecurity on self-reported job performance. This effect was shown to be robust against the moderating influence of optimism and supervisory support, and was partially explained by decreased vigour. The inclusion of a second data wave indicated that job insecurity predicted job performance one year later also in a U-shaped form (n = 1,289). Overall, the results suggest that taking quadratic effects into account adds to understanding of the relationship between job insecurity and self-reported job performance.

Keywords: job insecurity, self-reported job performance, U-shaped relationship, nonlinear, optimism, supervisory support, vigour at work, longitudinal

Points for practitioners:

• The study reveals that the relationship between job insecurity, vigour and self-reported performance is slightly U-shaped.

• At lower to moderate degrees of intensity, job insecurity is negatively related to self-reported job performance, whereas at higher degrees the effect is less negative.

• The U-shaped effect can partly be explained by vigour: at low and high degrees of job insecurity, vigour is slightly less impaired than at moderate degrees. The study does not indicate that job insecurity is a motivator in the workplace.
How does job insecurity relate to self-reported job performance? Analysing curvilinear associations in a longitudinal sample

Over the last few decades, there has been a considerable increase in the number of studies conducted on the effects of perceived job insecurity. Interestingly, while many studies have been published on the consequences of job insecurity for psychological health (see Cheng & Chan, 2008; Sverke, Hellgren, & Näswall, 2002; for meta-studies), less research has been reported on the relationship between job insecurity and job performance (Sverke, De Witte, Näswall, & Hellgren, 2010). One reason for this might be that the findings on the relationship between job insecurity and job performance have been rather inconsistent and therefore difficult to explain. While some meta-analyses on stressors and performance have indicated a modest negative impact of job insecurity on job performance (e.g. $\rho = -.10$ in non-English-speaking countries, see Gilboa, Shirom, Fried, & Cooper, 2008), others have not found this relationship (Sverke et al., 2002). There is even evidence from laboratory studies to suggest that job insecurity might have a slightly beneficial effect on performance (Probst, 2002; Probst, Stewart, Gruys, & Tierney, 2007). Inconsistent results like these have usually been explained in two ways: (1) by looking for methodological explanations, or (2) by searching for yet undiscovered moderators. In the present study, we suggest a third way: namely, we argue that these mixed effects might be the result of nonlinearity in the nature of the relationship between job insecurity and self-reported job performance. In other words, we propose that the level of job insecurity determines the nature of its relationship with self-reported performance.

The Relationship between Job Insecurity and Job Performance

On theoretical grounds, job insecurity is usually defined as the “perceived probability and perceived severity of losing one’s job” (Jacobson, 1991, p. 39). Job insecurity has been approached from a variety of theoretical frameworks, such as psychological contract breach
(De Cuyper & De Witte, 2006), and the conservation of resource theory (König, Debus, Häusler, Lendenmann, & Kleinmann, 2010). At the heart of most definitions, however, lies the understanding that job insecurity, an event with a highly uncertain outcome, is a stressor (Klandermans, Van Vuuren, & Jacobson, 1991; Sverke et al., 2010). In analyses of the consequences of job insecurity, job performance has usually been considered from one of two related perspectives: either it is regarded as being negatively affected by the strain associated with job insecurity, or it is seen as a coping response applied to manage job insecurity (Gilboa et al., 2008).

From the first perspective, job insecurity is assumed to lead to psychosomatic strain, with detrimental effects on physical and mental health as well as work-related behaviour (Greenhalgh & Rosenblatt, 1984; Sverke et al., 2002, p. 246). Due to physical and psychological strain, employees are not able to invest enough energy in their job, which reflects negatively on their job performance. From the second perspective, changes in job performance are seen as the result of coping efforts used to deal with the tension stemming from job insecurity (Klandermans et al., 1991). For example, lay-off survivors and other job-insecure employees have been found to put more effort in their work than less job-insecure employees (e.g. Brockner et al., 1986; Van Vuuren, Klandermans, Jacobson, & Hartley, 1991). Nevertheless, empirical evidence on the relationship between job insecurity and job performance is scarce and conflicting and fails to clearly support the one perspective over the other (e.g. Gilboa et al., 2008; Probst, 2002; Sverke et al., 2002).

In the present study, we propose that the relationship between job insecurity and self-reported job performance might be nonlinear, more specifically, U-shaped in nature. In line with the first perspective, we suggest that job insecurity affects job performance negatively through the impairment of work-related energy, i.e. vigour. However, we expect job insecurity and vigour to show a U-shaped relation: at low and high degrees of job insecurity there will be less impairment of vigour than at moderate degrees. This effect will be
especially pronounced if job performance is measured via self-report, as we did in the present study.

**Nonlinearity in the relationship between job insecurity and job performance**

Although nonlinear relationships between job insecurity and its consequences have not been widely discussed, empirical research has occasionally been reported. In a survey among a representative German population sample, Borg and Braun (1992) found a U-shaped relationship between job insecurity and a variety of positive work attitudes; for example, persons with lower and higher levels of job insecurity reported more global job satisfaction than persons with moderate levels. Borg and Braun (1992) do not offer an explanation for this finding but speculate that job insecurity might be interpreted as challenging or hindering, depending on its strength. In another study, Brockner, Grover, Reed, and Dewitt (1992) also reported a nonlinear relationship between job insecurity and performance among a sample of lay-off survivors. However the effect they found took an *inverse* U-shaped form, similar to the historical Yerkes-Dodson law (Yerkes & Dodson, 1908) that postulates an inverted U-shaped relationship between stimulus strength and learning behaviour among animals. Brockner et al. (1992) found that employees who perceived moderate levels of insecurity reported the highest effort at work.

Despite their differences, the studies by Borg and Braun (1992) and Brockner and colleagues (1992) seem to indicate that there are empirical reasons for expecting a curvilinear relationship between job insecurity and job performance. If the job insecurity-job performance relationship follows a U-shaped pattern as observed by Borg and Braun (1992), this might explain why some studies find negative relationships, while others find zero or even positive relationships between the two constructs: Different studies might have sampled differently job-insecure respondents. Indeed, in studies where a positive relationship between job insecurity and job performance has been found, respondents on average indicated moderate levels of job insecurity at around the mid-point of the scale (e.g. Probst et al., 2007),
whereas in studies where a negative relationship was indicated, the mean level of job
insecurity was often considerably lower than the midpoint of the scale (e.g. Schreurs, Van
Emmerik, Günter, & Gernemeys, 2012). Aside from these empirical indications, there are also
theoretical reasons to expect a curvilinear effect, which we believe is likely to be U-shaped.

**Theoretical Explanations for Nonlinearity**

There is reason to assume that the relationship between job insecurity and job
performance is mediated by work-related energy, i.e. vigour. In accordance with the classic
models of job insecurity (e.g. Greenhalgh & Rosenblatt, 1984), we presume that job
insecurity, as a potentially severe stressor at work, creates tension and strain. Employees who
suffer from increasing tension caused by the threat of job loss are most probable to exhibit
impaired job performance (Gilboa et al., 2008). There is empirical support for this
assumption: job insecurity has been found to be negatively related to vigour (Kinnunen,
Mauno, & Siltaloppi, 2010; Mauno, De Cuyper, Tolvanen, Kinnunen & Mäkikangas, 2013;
Mauno, Kinnunen, & Ruokolainen, 2007). In brief, vigour is defined as mental resilience
while working; it indicates willingness to invest effort in work, and to show persistency in the
face of difficulties, and is also regarded the opposite of emotional exhaustion (e.g. Schaufeli,
Salanova, Gonzáles-Romá, & Bakker, 2002). If, as assumed, vigour contains motivational
elements, then it is connected to goal-directed behaviour (Shirom, 2003). Indeed, vigour has
been related to better work performance in several studies (e.g. Christian, Garza, & Slaughter,
2011; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Taken together, it is plausible
to expect that job insecurity will lead to less vigour and in turn to lower job performance.

However, it is probable that the relationship between job insecurity and vigour is U-
shaped. Among a group of job-insecure employees in an organisation, the highest levels of
job insecurity might not go hand in hand with lowest degrees of vigour. It is likely that
employees who are highly job insecure differ from less insecure employees in vigour. People
who are highly job insecure but are still in their jobs, might also be the kinds of people who are more persistent and resilient in the face of difficulties. After all, subjective job insecurity is related to a certain objective probability of job loss, as well as an increased willingness to quit the job (e.g. Chen & Chang, 2008; Mauno et al., 2013). In other words, the highly job-insecure employees might be the remaining few who have not been discharged and have not yet voluntarily quit. One reason for this might be that they generally possess more energy, resilience and persistency, reflected in increased levels of vigour, than employees who are moderately job insecure. Moreover, employees who are highly job insecure might have adapted to the threat of job insecurity. In light of the stress theory, it is likely that the relationship between job insecurity and tension will not be linear over time (Lazarus & Folkman, 1984). To the degree that higher levels of job insecurity indicate longer exposure to the threat, people might have become adapted to it, which would be reflected in less impairment of vigour.

Both of these mechanisms would result in a positive relationship between job insecurity and vigour at high levels of job insecurity. Since vigour is positively related to job performance (Xanthopoulou et al., 2009), job insecurity would be positively related to job performance. Hence we might assume that at high levels, job insecurity would be positively related to vigour and thereby positively related to job performance.

In sum, we assume that the effect of job insecurity on job performance is mediated by vigour. Furthermore, we expect the relationship between job insecurity and vigour to be different at low and high levels of job insecurity. At low to moderate levels, job insecurity will be negatively related to employees’ work-related vigour, which might account for its negative relationship with job performance. At high levels, job insecurity and vigour will be positively related, which might lead to a positive relationship between job insecurity and job performance. Overall, this might result in a U-shaped relationship between job insecurity and
Job Performance and Job Insecurity

When analysing job performance in relation to job insecurity, it is crucial to clarify which kind of job performance is to be studied. Job performance is a multidimensional construct (Griffin, Neal, & Parker, 2007), and in studies of job insecurity it has been assessed, for example, via self-reports (e.g. Gilboa et al., 2008; Schreurs et al., 2012; Sverke et al., 2002), supervisory ratings (e.g. Huang, Niu, Lee, & Ashford, 2012; Loi, Ngo, Zhang, & Lau, 2011), and objective output measures (e.g. Probst et al., 2007) Job performance has been so variously defined and measured that this has even been speculated to be a reason for the conflicting results obtained on its association with job insecurity (Probst et al., 2007).

Here, following Griffin et al. (2007) and Probst et al. (2007), we will apply the concept of task proficiency, which refers to how well an individual performs the core tasks specified in his or her job description. Task proficiency has been related to role clarity, and it has been argued that in uncertain contexts, the ability to carry out job-specific core tasks is impaired (Griffin et al., 2007). This indicates that task proficiency is sensitive to job insecurity. Since ordinary task performance is usually not something that receives particular attention from supervisors or colleagues, the use of a self-report measure seems appropriate. Self-report measures can provide more accurate information on a person’s performance, since they assess the opinion of the person who is most familiar with it (Griffin et al., 2007). Subtle changes in vigour due to job insecurity might therefore be more likely to register on this measure than on an outsider’s judgement of performance. Clearly, self-ratings of performance can be prone to several types of bias, and might even reflect elements of motivated self-enhancement (Farh & Dobbins, 1989; cited in Griffin et al., 2007). This might be of interest here, as high self-reports of job performance could have a functional value in times of high
job insecurity, as indicating that better performance is regarded as an effective coping strategy by job-insecure employees (Van Vuuren et al., 1991). In other words, people who are high in job insecurity might, as a coping strategy, over-report their job performance.

Overall, self-report measures of task proficiency are probably more likely than observations to capture a U-shaped relationship with job insecurity, since they might be more sensitive to changes in work-related energy and might also be affected by motivated changes in self-presentation.

**Alternative Explanations of Nonlinear Effects**

Testing for U-shaped effects in non-experimental studies is difficult, the main reasons being that quadratic relationships need large samples for such effects to become manifest (Borg & Braun, 1992) and that U-shaped effects are hard to distinguish from other kinds of interaction effects, such as moderator effects (Cohen, Cohen, West, & Aiken, 2003, p. 301). Statistically, U-shaped and moderator effects function according to the same principles. Both assume a variation in the dependent variable at certain values of a multiplication of the independent variable. If a moderator and an independent variable are strongly correlated (which is often the case between job insecurity and its proposed moderators) the influence of their interaction term in a multiple regression analysis is likely to be inflated (Cortina, 1993). In this case, the significant contribution of a moderator might indicate a quadratic effect of the independent variable rather than the influence of a moderator. A similar logic applies to the test of U-shaped effects: a significant quadratic effect of an independent variable might in fact indicate the influence of a moderator, if the moderator variable and the independent variable are highly correlated. In order to rule out the possibility that the nonlinearity is the result of the influence of a moderator, Cortina (1993) recommends including moderators in the analysis. In order to keep issues of multicollinearity at bay, the inclusion of moderators has to be substantively justified (Cohen et al., 2003).
In this study, the proposed U-shaped effect is tested against the moderating influence of the personality variable optimism and the contextual variable supervisory support. Social support, defined as affective support, confirmation and direct help (Frese, 1999) has been identified as an important stress buffer in numerous studies (e.g. Frese, 1999; Halbesleben, 2006; Johnson & Hall, 1988). In a weekly diary study among Belgian employees, Schreurs et al. (2012) found that perceived supervisory support buffered against the effect of job insecurity on self-rated job performance: The performance of persons who perceived more supervisory support was less negatively affected by job insecurity. Hence, different parts of the proposed curvilinear relationship between job insecurity and job performance might actually represent different groups of employees who receive different amounts of supervisory support.

The second moderator variable we include is optimism. Dispositional optimism, which is defined as a tendency to believe that one will generally experience good rather than bad outcomes in life (Scheier & Carver, 1985; Scheier, Carver, & Bridges, 2001), has been linked to favourable appraisals of events in a variety of situations (cf. Aspinwall & Taylor, 1997). Consequently, optimists are more likely to appraise job insecurity as something amendable or as a challenge to be taken up, and less likely to be negatively affected by it (Aspinwall & Taylor, 1997; Mäkikangas & Kinnunen, 2003; Scheier et al., 1989). Optimism might also impact on how a person reacts to job insecurity, as it has been linked to better behavioural self-regulation (Carver & Scheier, 1998). Optimists will be likely choose more active, problem-solving coping responses to a stressor, such as increasing their performance in times of job insecurity (cf. Aspinwall & Taylor, 1997; Carver & Connor-Smith, 2010). In addition, optimists might be biased towards more favourable evaluations of their own performance (Metcalfe, 1998). Seen in this light, the proposed curvilinear effect between job insecurity and self-rated job performance might be explained by high optimism rather than different levels of job insecurity.
In sum, although there are good reasons why we expect the relationship between job insecurity and self-rated performance to have a U-shaped form, alternative explanations, assuming the impact of moderators, need to be ruled out before we can turn to offering explanations for this effect. Here, we will first test for the existence of a quadratic effect and then, if such an effect is found, test it against the influence of optimism and supervisory support. Finally, if the U-shaped effect remains stable, we will test whether it can be explained by the mediating variable vigour.

**Hypotheses to be tested**

The reasoning presented above prompts the following hypotheses. First, we predict that the relationship between job insecurity and job performance is U-shaped (H1). Secondly, we hypothesize that the U-shaped relationship between job insecurity and job performance will hold against the proposed influence of supervisory support (H2) and optimism (H3). Furthermore, we postulate that job insecurity will affect job performance through impaired vigour. More specifically, job insecurity and vigour will be show a U-shaped relationship, and vigour will be positively related to job performance, thereby resulting in an overall nonlinear effect. We hypothesize, therefore, that the U-shaped effect of job insecurity on job performance will be mediated by vigour (H4).

In this study, we will test the hypotheses by surveying a large sample of Finnish university workers, who in most cases are employed on fixed-term contracts. Over the past few years, the Finnish university system has undergone extensive organisational upheaval, including changes in the legal status of universities and in the kinds of employment contracts that can be offered, and hence also in job security (Dobson, 2009). These workers were examined across two waves, enabling the stability of the effects as well as the effect of high job insecurity to be tested over time. By controlling for baseline performance and vigour, it is possible, after controlling for the stability of the three variables, to determine whether job insecurity predicts self-reported job performance and vigour one year later, and whether it
does so in a U-shaped way. If our assumptions hold, job insecurity should be negatively related to performance and vigour, except at high levels of job insecurity. Persons who report high levels of job insecurity should also report more vigour and better performance over time.

**Method**

**Procedure and Participants**

The participants were drawn from a large-scale research project on well-being among temporary and non-temporary employees of two Finnish universities with two data waves over a period of one year. At the time the Finnish university system was still in the throes of major reforms and changes, particularly with respect to how universities are organized (Dobson, 2009). These changes concerned not only the top level of the university administration, e.g. how rectors were appointed, but all employees, as the change in the legal status of the universities meant that employees would no longer have the status of civil servants. In addition, the ownership of the universities has also changed: from being predominantly state-owned they were to be predominantly privately owned. The various reforms were expected to have wide-ranging effects on how universities are run in Finland (cf. Dobson, 2009; Finnish Ministry of Education and Culture, n.d.). It was considered very likely that the university reforms would create a climate of job insecurity among their personnel, as people could no longer be so sure about the future of their employment contracts. This context provided an ideal setting for investigating workers’ job insecurity.

The respondents included both academic and administrative personnel at various levels of the organisational hierarchy. Prospective participants \( N = 4,408 \) were sent an invitation to an online questionnaire study via their work email address in autumn 2008 (T1) and one year later in autumn 2009 (T2). In 2008, 2,137 people took part in the study, yielding a response rate of 48.48%. Of these respondents, 42 people were excluded due to missing
values, resulting in a total sample of $n = 2,095$ at Time 1. One year later, 1,289 of these respondents participated again, providing a complete dataset.

65.7% of the respondents at T1 were female (67.8% at T2), and the average sample age was 42.85 years ($SD = 11.08$) ($M = 43.32$, $SD = 10.76$ at T2). The participants were highly educated: 68.5% had at least a master’s degree at T1 and 68.4% at T2. The majority worked on a temporary employment contract (57.3% at T1, 53.9% at T2), had children (62.9% at T1 and 62.5% at T2) and had a partner (80.3% at T1 and 80.4% at T2).

**Sample Attrition Analysis**

To control for systematic dropout at T2, a logistic regression analysis was conducted using dropout (0 = no dropout/1 = dropout) as the dependent variable and all the variables of interest in this study as predictors. The analysis proceeded hierarchically, using the demographic variables (gender, education, age, being in a relationship, type of employment contract) in the first step, and then adding the variables that were of particular interest in this study in the second step (job insecurity, optimism, supervisory support, vigour, and job performance).

1,289 respondents participated a second time, indicating a dropout rate of 38.5%. The logistic regression analysis showed that the demographic variables that had been added in the first step contributed significantly to the explained variance of dropout: $\chi^2 (6) = 26.74$, $p < .001$. Specifically, being a man, $OR = 0.77$, 95% CI [0.64, 0.93], and having a temporary contract, $OR = 0.69$, 95% CI [0.55, 0.87], contributed to dropout. The second step of the analysis was not significant, $\chi^2 (5) = 6.06$, $p = .301$, indicating that the variables of interest in this study did not contribute to the prediction of dropout. Hence, we did not expect dropout to influence the results.

**Measures**

**Job insecurity** was measured with the four-item Job Insecurity Scale by De Witte (2000). Sample items are “I worry about keeping my job” and “I am sure I can keep my job in
the near future” (reverse coded). Responses were rated on a 7-point scale (1 = totally disagree, 7 = totally agree). This scale showed good reliability at T1 (Cronbach alpha = .92) and T2 (Cronbach alpha = .93).

**Self-reported job performance.** Probst et al. (2007) argued that one reason for the mixed findings on job insecurity and job performance might be inconsistencies in the operationalisation of job performance. Consequently, job performance was operationalised as task-proficiency in the present study, in line with Probst et al. (2007). *Self-rated job performance at work* was measured at both time points by using the task proficiency scale by Griffin et al. (2007). These items refer to the degree to which respondents reported meeting their job-role requirement during the last month (e.g., “I have carried out the core parts of my job well”). Responses were rated on a 7-point scale ranging from 1 (totally disagree) to 7 (totally agree). Cronbach alphas for this scale were good at both T1 (Cronbach alpha = .88) and T2 (Cronbach alpha = .88,). A routine Kolmogorov-Smirnov test for normality on the measure of job performance revealed that it was highly skewed both at T1 (D = 6.92, p < .001) and at T2 (D = 7.90, p < .001). Therefore, a median split was conducted: persons reporting an average performance of 6 or lower were scored 0, and all persons who reported performance higher than 6 were scored 1 on this new, dichotomised variable (note that at both time points, the median was the same).

**Supervisory support.** Social support of one’s superior was measured with two items (“If needed, can you get support and help with your work from your nearest superior?” and “If needed, is your nearest superior willing to listen to your work-related problems?”) drawn from the General Nordic Questionnaire for Psychological and Social Factors at Work (QPSNordic) (Elo et al., 2001). The items correlated highly at both T1 (Cronbach alpha = .91) and T2 (Cronbach alpha = .92).

**Optimism.** Optimism was measured via three items based on the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Brigdes, 1994). Respondents gave answers to items
such as “In uncertain times, I usually expect the best”, “I’m always optimistic about my future” and “Overall, I expect more good things to happen to me than bad” on a 7-point scale ranging from 1 (totally disagree) to 7 (totally agree). This scale showed sufficient reliability at both T1 (Cronbach alpha = .76) and T2 (Cronbach alpha = .75).

**Vigour.** Vigour is considered to be one sub-dimension of the overarching concept of work engagement, and a counter-experience to job exhaustion, which refers to chronic work-related fatigue (Schaufeli et al., 2002). To measure vigour, a subscale of the short version of the Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006) was used. This version consists of three items: “At my work, I feel that I am bursting with energy”, “At my job, I feel strong and vigorous” and “When I get up in the morning, I feel like going to work”. Persons indicated how often they experienced these states on a 7-point scale, ranging from 1 (never) to 7 (always). Reliability was good at both time points (Cronbach alpha \text{ T1} = .88 and Cronbach alpha \text{ T2} = .90).

**Statistical Analysis**

First, we tested for the proposed U-shaped relationship between job insecurity and self-reported job performance and its stability against the moderators optimism and supervisory support. Specifically, hierarchical logistic regression analyses were carried out in line with the suggestions by Jaccard (2001). One analysis predicted job performance at T1 (Table 2), a second one predicted job performance at T2 while controlling for job performance at T1 (Table 3, left column), and a third one predicted job performance at T2 without controlling for these two variables (Table 3, right column). The analyses progressed in five hierarchical steps. After testing for the influence of the control variables, the linear term job insecurity was added in the second step. In the third step, the quadratic term of job insecurity was entered, to test for the proposed U-shaped relationship between job insecurity and job performance. In order to test whether the U-shaped effect would hold against the
moderating influence of supervisory support (H2) and optimism (H3), these variables were entered as main effects first, then their interaction terms were entered in step 5a.

In a second set of analyses, it was tested whether the proposed U-shaped effect would be explained by vigour (H4). To do this, yet another set of hierarchical logistic regression analyses were carried out, following exactly the same steps as the analyses described above, except that vigour was added as alternative step 5b. This stepwise procedure allowed us to test whether vigour would decrease the impact of the quadratic effect of job insecurity on job performance. If it did, this might indicate a mediation of the quadratic effect. In addition, a test of the indirect effect of job insecurity via vigour on job performance was carried out using the PROCESS macro by Hayes (2013). When testing for mediation over time in a two-wave study, it has first to be decided where to locate the mediator variable (Cohen et al., 2003). In the present analysis, vigour was located at T2, to test whether job insecurity squared would predict vigour over time. Again, one of the longitudinal analyses was carried out controlling for vigour at T1 (Table 3, left column), and another one not controlling for it (Table 3, right column).

In order to rule out the influence of demographic variables (age, gender, education, type of employment contract, being in a relationship and having children), they were used as control variables in both sets of analyses. All the continuous variables (age, education, job insecurity, supervisory support, optimism and vigour) were mean-centred before being entered in the analyses; all the other variables were recoded into 0-1 format. All the interaction and quadratic terms were based on the mean-centred variables.

Results

Testing for a U-shaped relationship between job insecurity and self-reported job performance

As expected, the Pearson correlations as well as the logistic regression analyses showed that job insecurity was not linearly related to self-reported job performance (Pearson
correlations are presented in Table 1; for the results of the logistic regression analysis, see Table 2 and Table 3).

In line with the assumption, the quadratic term of job insecurity added significantly to the prediction of job performance, confirming the proposed U-shaped effect (see Table 2, step 3). Noteworthy is that this effect was also found over time: the quadratic term of job insecurity at T1 was related to job performance at T2. It did not matter for the longitudinal U-shaped effect whether job performance at T1 was controlled for (Table 3, left column) or not (Table 3, right column).

Furthermore, the U-shaped effect remained significant when optimism and supervisory support were added as main effects and as moderators (see Table 2 and 3, step 4 and 5a). Although the addition of the interaction terms did not contribute to the prediction of job performance over the quadratic term, at either T1 or T2, it should be noted that the interaction term of job insecurity and optimism significantly predicted job performance at T1 (Table 2, step 5a). In addition, the inclusion of these terms caused a reduction in the U-shaped effect over time. We will refrain from interpreting the interaction effect, in line with Cohen et al. (2003), who recommend against interpreting singular coefficients, when their contribution to the overall explained variance is not significant.

Taken together, the data provide strong support for the main hypothesis that job insecurity and self-reported job performance show a U-shaped relationship (H1). It also shows that this effect is not due to moderation by optimism (H2) or supervisory support (H3).
To better understand the U-shaped relationship, the logistic regression equation was plotted for different values of job insecurity within the 90% range of the distribution of job insecurity. In plotting the simple slopes, all the other variables in the equation were constrained to zero (which means that all the succeeding numbers refer to male of average age, not in a relationship, with average education, a temporary employment contract, an average amount of optimism and supervisory support). The resulting log-odds were then transformed into odds and subsequently into probabilities (see Jaccard, 2001, p. 7).

At T1, the odds of reporting above average job performance at an average intensity of job insecurity, for a male person, average age, with average optimism and supervisory support were $OR = 0.36$, $B = -1.02$, $SEB = .15$, which corresponds to a probability of 26.56%. At T2, if job performance at T1 was controlled for, the respective odds were $OR = 0.17$, $B = -1.76$, $SEB = .23$ while for a person who did not report above average performance at T1 the probability was 14.62%. Persons who reported higher job insecurity were also more likely to report exceptional job performance. However, persons who reported lower job insecurity also had a higher probability of reporting high job performance (see Figures 1 and 2 for an illustration of the prediction of job performance at varying intensities of job insecurity). It should be noted that the U-shaped curve appears to differ slightly between the cross-sectional and longitudinal results. The curve depicting the longitudinal relationship with job performance at T2, shows a more positive trend at extreme job insecurity values. This indicates that people who were highly job insecure at T1 were even more likely to report high job performance at T2 than they were at T1 (note that controlling for job performance at T1 allows for an observation of change).

--------------------------------------------

Insert Figures 1 and 2 about here

--------------------------------------------
Although supervisory support and optimism failed to work as moderators, they added linearly to the prediction of job performance at T1 and over time: the more optimistic individuals were at T1, the higher the job performance they reported at T1 and at T2, even when job performance at T1 was controlled for. This result implies that dispositional optimism is an important personal resource, which may relate longitudinally to job performance. Supervisory support also added to the prediction of job performance, but not over time. Control variables at T1 showed that older people, $OR = 1.02$, 95% CI [1.01; 1.03], males, $OR = 1.46$, 95% CI [1.21; 1.77], and people who were in a relationship, $OR = 1.27$, 95% CI [1.00; 1.61], were more likely to report exceptional job performance. For the prediction of job performance at T2, only performance at T1, which was included as extra control variable, showed a significant effect: $OR = 8.49$, 95% CI [6.52; 11.06].

**The mediating role of vigour**

Next, we tested whether the U-shaped relationship between job insecurity and job performance might be explained by the influence of vigour. To do so, vigour was included in the analysis as an alternative step 5 (see Table 2, Step 5b). For the prediction of job performance at T2, vigour was located at T2 as well and two different analyses were carried out, one controlling only for the demographic variables (Table 3, Step 5b, right column), and the other additionally controlling for job performance and vigour at T1 (Table 3, Step 5b, left column). It appeared that vigour had a significant positive effect on the prediction of job performance, over and above the curvilinear effect, in all three analyses. Also, the curvilinear effect of job insecurity on performance, although slightly smaller when vigour was included, remained significant. This demonstrates that the squared term of job insecurity is not fully explained by vigour, but that a partial mediation is likely.

To test this partial mediation effect, a test of the indirect effect was carried out, using Hayes’ PROCESS macro (Hayes, 2013). This procedure estimates an indirect effect of the squared term of job insecurity on job performance via vigour, using a bootstrapping
technique. Bootstrapping has a couple of advantages over other approaches, and is recommended if the indirect effects are assumed to be of small size (Preacher & Hayes, 2004). Bias-corrected and accelerated bootstrapping was conducted in the present analysis using 5,000 repetitions.

The results showed a very small indirect effect of the squared term of job insecurity via vigour on job performance at T1: $B = .01, SE_B = .00, 95\% \text{ CI } [0.00; 0.01]$. As expected, the quadratic term of job insecurity was positively related to vigour: $B = .01, SE_B = .01, t = 2.09, p = .036$. Also, the linear term of job insecurity was related to vigour, $B = -.05, SE_B = .01, t = -3.98, p < .001$, and had a significant indirect effect on job performance at T1 through vigour: $B = -.02, SE_B = .01, 95\% \text{ CI } [-0.04; -0.01]$.

The indirect effect of quadratic job insecurity at T1 on job performance at T2 via vigour at T2 did not reach significance, irrespective of whether job performance and vigour at T1 were controlled for or not. The linear term of job insecurity at T1 had an indirect effect on job performance at T2, but only if job performance and vigour at T1 were not controlled for: $B = -.03, SE_B = .01, 95\% \text{ CI } [-0.06; -0.00]$.

In sum, the results of the hierarchical regression analyses and the test of the indirect effects indicate weak support for hypothesis 4 at T1. Only a small proportion of the quadratic effect of job insecurity on job performance was explained by vigour. For the prediction of job performance at T2, there was no significant indirect effect of job insecurity at T1 via vigour at T2.

**Discussion**

This study aimed to shed more light on the relationship between job insecurity and self-rated job performance by suggesting that it might be U-shaped. We provided theoretical, empirical and statistical arguments in support for this assumption. Specifically, it was proposed that at low to average levels job insecurity is negatively related to self-rated job
performance, because it impairs work-related vigour. We expected that employees with a high degree of job insecurity would report more vigour and hence better job performance than those with a moderate degree of job insecurity. Vigour has previously found to be positively related to job performance (e.g. Christian et al., 2011; Xanthopoulou et al., 2009); consequently, if, as we speculated, vigour and job insecurity are related in a U-shaped fashion, this might also explain the U-shaped relationship between job insecurity and job performance. We tested this assumption in a large sample of highly job-insecure university workers, over two measurement times. In addition we checked the U-shaped effect against two alternative explanations – that curvilinearity might really just be the manifestation of the moderating influence of supervisory support and optimism.

Main findings

Our hypotheses concerning the existence of a U-shaped relationship between job insecurity and job performance were largely supported. First of all, we found that the likelihood of reporting higher job performance varied in a U-shaped fashion with the intensity of job insecurity, as proposed (H1). At lower and extremely high degrees of job insecurity persons reported better job performance than at moderate degrees of job insecurity. This effect was shown cross-sectionally and also longitudinally, even after controlling for job performance during the previous year.

Secondly, the U-shaped effect was robust against the influences of optimism and supervisory support. Although optimism added to the explanation of job performance, its interaction with job insecurity did not, once the curvilinear effect was included. Optimism continued to show a moderator effect, once the quadratic effect was controlled for, but this effect did not add to the overall prediction of job performance. Supervisory support did not interact with job insecurity either cross-sectionally or over time. This confirms our hypothesis
that the nonlinear relationship between job insecurity and job performance is not due to moderation by optimism or supervisory support.

Thirdly, our study indicated that at least a small part of the U-shaped effect can be explained by vigour. Job insecurity and vigour were related in a U-shaped fashion: people who reported low and high degrees of job insecurity reported more vigour than those who reported moderate degrees of job insecurity. Similar to previous studies, vigour was positively related to job performance (e.g. Christian et al., 2011; Xanthopoulou et al. 2009).

Finally, by including a second wave of data, we are able to observe trends in the U-shaped relationship over time. It appeared that people who reported high job insecurity and high job performance at the first measurement time reported even higher job performance one year later. However, this effect was not explained by an increase in vigour, which we proposed would occur if people adapt to high job insecurity over time.

To summarise, we can make a strong case for a U-shaped relationship between job insecurity and self-reported job performance, and also provide some evidence for an underlying mechanism. We were able to replicate and expand the earlier findings by Borg and Braun (1992), by investigating the possibility of a U-shaped relationship between job insecurity and job performance, testing it against the influence of moderators and also testing for an explanation involving vigour. Nevertheless, this explanation accounts for only a small proportion of the effect and is in need of more empirical support.

Integrating the results of our study into the rather fragmented job insecurity and job performance literature is challenging. At first glance, the U-shaped findings seem to be at odds with the Yerkes-Dodson-like effect, which proposes an inverse U-shaped relationship between stressors and performance, and was found by Brockner and colleagues (1992) in the area of job insecurity. One reason for this might lie in the approach to the measurement of job insecurity: whereas our measure of job insecurity assessed perceived threat of job loss, Brockner and colleagues (1992) measured job insecurity through appraisals of threat and
appraisals of control, with is in accordance with Karasek and Theorell’s (1990) definition of a stressor. These measures were subsequently combined into a measure of job insecurity. If the threat appraisals in Brockner et al.’s (1992) study are considered without the control appraisals, the findings of the two studies are in much closer alignment.

Interestingly, once the quadratic effect was controlled for in our study, supervisory support showed no moderator influence, and optimism had only a linear positive effect. The positive relationship between optimism and self-reported job performance is worth noting and supports assumptions about the influence of positive self-concepts on performance (Staw, Sutton, & Pelled, 1994). The finding that social support did not work as a job insecurity buffer is in contrast to Schreurs et al. (2012). One reason for this difference might lie in the dependent measures used. Unlike Schreurs et al. (2012), we used a dichotomised outcome measure, since the self-report measure of job performance was highly skewed. Although this allowed for more robust estimates, dichomization came at the price of reduced variance, which might have limited the possibility to detect interaction effects (Cohen et al., 2003). Also, it should be noted that the curvilinear effects that were found are on the probability of reporting extraordinary job performance. More subtle changes in reported job performance, within the ordinary range, were not captured by this measure. Finally, contextual differences may also account for the divergent findings: we sampled Finnish university employees, whereas Schreurs et al. (2012) sampled Belgian employees of various multinational companies. Gilboa et al. (2008) also speculate about context effects, but additional studies would be needed to clarify this issue, as our study was single-sample only.

Limitations of the study

The present findings also have certain limitations. For one, the explanation of the u-shaped effect by vigour was only partly supported, and alternative explanations therefore should not be ruled out. Rather than considering the U-shaped relationship between job
insecurity and job performance as the result of varying lowered energy levels, it could also be seen as the result of varying coping responses employed at different degrees of job insecurity (Aspinwall & Taylor, 1997). For example, one might speculate that a rise in self-reported job performance at high levels of job insecurity might reflect a kind of coping strategy. Enhancing one’s performance has been found to be an appealing strategy for job-insecure individuals, since it creates a favourable impression about oneself and might thereby reduce the likelihood of job loss (e.g. Gilboa et al., 2008; Van Vuuren, et al., 1991). Over-reporting one’s job performance hence has a functional value, which might be even more pronounced at higher than lower degrees of job insecurity. Studies that assess individual trends in the development of job insecurity and persons’ reaction to them over time might lend more clarity to these speculations. This might require large samples, as the level of perceived job insecurity seems to remain rather stable over time (Mauno, Leskinen, & Kinnunen, 2001; Mäkikangas, De Cuyper, Mauno, & Kinnunen, 2013).

Moreover, although we did not find the U-shaped relationship to be due to the moderating influence of optimism or supervisory support, we cannot dismiss the influence of other variables. For example, according to the dependency model, persons who depend more on their job might be more job insecure and for this reason also report higher job performance (see Greenhalgh & Rosenblatt, 1984). Studies that include a broader array of moderators as well as test for curvilinearity in the relationship between job insecurity and job performances could help in establishing the effect reported here.

Another limitation of this study is that all variables in the study were measured by self-reports, meaning that the measure of job performance and vigour might have been susceptible to positivity biases, biased standards of comparison, and even motivated efforts to exaggerate one’s performance (e.g. Frese, 1985). One can speculate that highly job-insecure persons might have sought to create a positive impression of themselves by over-reporting vigour and job performance. More objective measures of job performance would be needed to
confirm the U-shaped effect and to determine the degree to which self-report measures in a highly job-insecure situation reflect impression management strategies. Finally, it should be noted that meta-studies have confirmed the utility of self-report measures in research on job insecurity and job performance (Gilboa et al., 2008). There is also evidence that curvilinear relationships between job characteristics and strain might even be underestimated in mono-method research, and that the use of multi-trait multi-method studies could show stronger nonlinear effects (Baltes, Bauer, Bajdo, & Parker, 2002).

Finally, it is necessary to note that the analyses do not allow for conclusions about causality: the postulated effects could work just as well the other way around. For example, high performance might lead some people to feel more vigorous and therefore believe that their job is secure. Studies that allow tests of causality, including measures of the development of job insecurity over time and additional measures of job performance and vigour, would be helpful in confirming the present results and our interpretations of them.

Conclusions

We believe that this study provides important new findings for the investigation of the job insecurity – job performance relationship. It shows that the relationship between job insecurity and job performance might be U-shaped. The U-shaped effect was found to be stable in the presence of optimism and supervisory support as moderators, was partly explained by vigour and holds over time. This indicates to us that it is still too early to conclude that there is no relationship between job insecurity and performance (cf. Sverke et al., 2002), but that it is worthwhile to consider the possibility of U-shaped effects. What causes the U-shaped relationship is still largely unknown, but work-related energy might play an important role.

From a practical perspective, our research shows that although the relationship between job insecurity and job performance is likely to be non-linear, there is no reason to
expect a Yerkes-Dodson-like effect, as already low to moderate degrees of job insecurity go hand in hand with impaired self-reported vigour and performance. The finding that persons with high job insecurity reported better performance than persons with moderate job insecurity should also be interpreted with care. For one, it should be noted that self-reported job performance at the high levels of job insecurity was just slightly higher than at the moderate levels, but not as high as at the low levels of job insecurity. Also, until we know the exact mechanism behind this elevated value at high levels, it cannot be ruled out that this effect might be due to sample selection or positive self-enhancement. It should not be forgotten that the effects of job insecurity are largely negative, as it triggers poorer well-being and health, which will have negative effects on job attitudes in the long run (for reviews see Cheng & Chan, 2008; Gilboa et al., 2008; Sverke et al., 2002). Furthermore, we do not know what happens if for an employee insecurity becomes a chronic state, as could easily be the case in contemporary working life. It is unlikely that people can report or show extraordinary levels of performance for years to come without any negative effects. The long-term effects of job insecurity on performance might be negative, as one cannot continuously ‘top perform’ for years without negative health implications. We would strongly recommend that job insecurity not be used as a motivational tool.
References


Findings at the individual and work department levels. European Journal of Work and Organizational Psychology, DOI:10.1080/1359432X.2012.752896.


Table 1

Pearson Correlations of the Control Variables with Job Insecurity, Optimism, Supervisory Support, Vigour and Job Performance at T1 (Below the diagonal) and with Corresponding Values at T2 (Above the Diagonal) \((n_{T1} = 2,095, n_{T1T2} = 1,289)\). Diagonal Shows Autocorrelations of Variables Between T1 and T2.

<table>
<thead>
<tr>
<th></th>
<th>M_{T1}</th>
<th>SD_{T1}</th>
<th>M_{T2}</th>
<th>SD_{T2}</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.66</td>
<td>.47</td>
<td>.68</td>
<td>.47</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.05</td>
<td>.00</td>
<td>.00</td>
<td>.08**</td>
<td>.06*</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>42.85</td>
<td>11.08</td>
<td>43.32</td>
<td>10.76</td>
<td>-.02</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.29**</td>
<td>.12**</td>
<td>-.04</td>
<td>.21**</td>
<td>.10**</td>
<td></td>
</tr>
<tr>
<td>Relationship</td>
<td>.80</td>
<td>.40</td>
<td>.80</td>
<td>.40</td>
<td>-.05*</td>
<td>.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-.07*</td>
<td>.11**</td>
<td>-.01</td>
<td>.09**</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Children</td>
<td>.63</td>
<td>.48</td>
<td>.63</td>
<td>.48</td>
<td>-.03</td>
<td>.46**</td>
<td>.27**</td>
<td>-</td>
<td>-</td>
<td>-.11**</td>
<td>.15**</td>
<td>-.04</td>
<td>.16**</td>
<td>.07**</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>3.96</td>
<td>.96</td>
<td>3.96</td>
<td>-.14**</td>
<td>.06**</td>
<td>.09**</td>
<td>.07**</td>
<td>-</td>
<td>-</td>
<td>-.06*</td>
<td>-.01</td>
<td>-.06*</td>
<td>.01</td>
<td>-.02</td>
<td></td>
</tr>
<tr>
<td>Contract type</td>
<td>.43</td>
<td>.49</td>
<td>.46</td>
<td>.50</td>
<td>-.02</td>
<td>.58**</td>
<td>.00</td>
<td>.26**</td>
<td>-.10**</td>
<td>-.46**</td>
<td>.11**</td>
<td>-.01</td>
<td>.15**</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Job insecurity</td>
<td>3.31</td>
<td>1.72</td>
<td>3.29</td>
<td>1.72</td>
<td>.09**</td>
<td>-.23**</td>
<td>-.04</td>
<td>-.11**</td>
<td>-.06**</td>
<td>-.41**</td>
<td>.70**</td>
<td>-.26**</td>
<td>-.07*</td>
<td>-.22**</td>
<td>.03</td>
</tr>
<tr>
<td>Optimism</td>
<td>4.94</td>
<td>1.09</td>
<td>5.05</td>
<td>1.04</td>
<td>.02</td>
<td>.11**</td>
<td>.10**</td>
<td>.16**</td>
<td>-.02</td>
<td>.09**</td>
<td>-.28**</td>
<td>.75**</td>
<td>.13**</td>
<td>.43**</td>
<td>.16**</td>
</tr>
<tr>
<td>Superv. support</td>
<td>3.57</td>
<td>1.16</td>
<td>3.53</td>
<td>1.17</td>
<td>-.01</td>
<td>-.11**</td>
<td>-.03</td>
<td>-.05**</td>
<td>-.06**</td>
<td>-.09**</td>
<td>-.09**</td>
<td>.13**</td>
<td>.66**</td>
<td>.16**</td>
<td>.00</td>
</tr>
<tr>
<td>Vigour</td>
<td>4.80</td>
<td>.98</td>
<td>4.81</td>
<td>1.01</td>
<td>.09**</td>
<td>.21**</td>
<td>.11**</td>
<td>.21**</td>
<td>-.01</td>
<td>.14**</td>
<td>-.24**</td>
<td>.50**</td>
<td>.22**</td>
<td>.75**</td>
<td>.23**</td>
</tr>
<tr>
<td>Job performance</td>
<td>.42</td>
<td>.49</td>
<td>.39</td>
<td>.49</td>
<td>.08**</td>
<td>.14**</td>
<td>.05**</td>
<td>.10**</td>
<td>.00</td>
<td>.09**</td>
<td>-.04</td>
<td>.16**</td>
<td>-.02</td>
<td>.25**</td>
<td>.50**</td>
</tr>
</tbody>
</table>

Note. Gender coded as 1 = female, 0 = male; relationship coded as 1 = in a relationship, 0 = no relationship; children coded as 1 = having children, 0 = not having children; contract type coded as 1 = permanent employment contract; 0 = temporary employment contract; job performance coded as 1 = above average job performance, 0 = average job performance.

* \( p < .05 \), ** \( p < .01 \).
Table 2

*Logistic Hierarchical Regression Analysis of the Effect of Job Insecurity on Job Performance T1 (n = 2,095).*

<table>
<thead>
<tr>
<th>Step 2</th>
<th>B (SE B)</th>
<th>OR</th>
<th>95% CI</th>
<th>Wald Statistic</th>
<th>p</th>
<th>χ² (df)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job insecurity</td>
<td>0.00 (0.03)</td>
<td>1.00</td>
<td>[0.94; 1.05]</td>
<td>0.02</td>
<td>.888</td>
<td></td>
<td>.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3</th>
<th>B (SE B)</th>
<th>OR</th>
<th>95% CI</th>
<th>Wald Statistic</th>
<th>p</th>
<th>χ² (df)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job insecurity</td>
<td>-0.04 (0.03)</td>
<td>0.96</td>
<td>[0.90; 1.02]</td>
<td>2.04</td>
<td>.153</td>
<td></td>
<td>.05</td>
</tr>
<tr>
<td>Job insecurity Qu.</td>
<td>0.05 (0.02)</td>
<td>1.06</td>
<td>[1.02; 1.09]</td>
<td>12.34</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4</th>
<th>B (SE B)</th>
<th>OR</th>
<th>95% CI</th>
<th>Wald Statistic</th>
<th>p</th>
<th>χ² (df)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job insecurity</td>
<td>0.01 (0.03)</td>
<td>1.01</td>
<td>[0.95; 1.08]</td>
<td>0.08</td>
<td>.779</td>
<td></td>
<td>.07</td>
</tr>
<tr>
<td>Job insecurity Qu.</td>
<td>0.05 (0.02)</td>
<td>1.05</td>
<td>[1.02; 1.09]</td>
<td>11.05</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td>0.29 (0.05)</td>
<td>1.34</td>
<td>[1.23; 1.47]</td>
<td>41.02</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisory support</td>
<td>-0.04 (0.04)</td>
<td>0.96</td>
<td>[0.89; 1.04]</td>
<td>0.85</td>
<td>.357</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 5a</th>
<th>B (SE B)</th>
<th>OR</th>
<th>95% CI</th>
<th>Wald Statistic</th>
<th>p</th>
<th>χ² (df)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job insecurity</td>
<td>0.02 (0.03)</td>
<td>1.02</td>
<td>[0.95; 1.09]</td>
<td>0.27</td>
<td>.602</td>
<td></td>
<td>.08</td>
</tr>
<tr>
<td>Job insecurity Qu.</td>
<td>0.04 (0.02)</td>
<td>1.04</td>
<td>[1.01; 1.08]</td>
<td>6.60</td>
<td>.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td>0.31 (0.05)</td>
<td>1.36</td>
<td>[1.24; 1.49]</td>
<td>43.05</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisory support</td>
<td>-0.04 (0.04)</td>
<td>0.96</td>
<td>[0.89; 1.04]</td>
<td>0.97</td>
<td>.325</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JI×Optimism</td>
<td>-0.05 (0.03)</td>
<td>0.95</td>
<td>[0.90; 1.00]</td>
<td>4.45</td>
<td>.035</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JI×Supervisory supp.</td>
<td>0.03 (0.02)</td>
<td>1.03</td>
<td>[0.98; 1.07]</td>
<td>1.31</td>
<td>.252</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 5b</th>
<th>B (SE B)</th>
<th>OR</th>
<th>95% CI</th>
<th>Wald Statistic</th>
<th>p</th>
<th>χ² (df)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job insecurity</td>
<td>0.03 (0.03)</td>
<td>1.03</td>
<td>[0.97; 1.10]</td>
<td>1.00</td>
<td>.318</td>
<td></td>
<td>.12</td>
</tr>
<tr>
<td>Job insecurity Qu.</td>
<td>0.05 (0.02)</td>
<td>1.05</td>
<td>[1.02; 1.08]</td>
<td>8.64</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td>0.12 (0.05)</td>
<td>1.13</td>
<td>[1.02; 1.24]</td>
<td>5.37</td>
<td>.020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisory support</td>
<td>-0.11 (0.04)</td>
<td>0.89</td>
<td>[0.82; 0.97]</td>
<td>7.15</td>
<td>.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vigour</td>
<td>0.05 (0.02)</td>
<td>1.05</td>
<td>[1.02; 1.08]</td>
<td>8.64</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. JI = Job insecurity, Supervisory supp. = Supervisory support.

At T1 at step 1 age, gender, being in a relationship, having children, education, and employment contract were entered as controls. Control variables were omitted for reasons of clarity.

R² values indicate Nagelkerke R² estimates.

** p < .01.
Table 3
Longitudinal Logistic Hierarchical Regression Analysis for the Effect of Job Insecurity T1 on Job Performance T2 (n = 1,289).

Controlling for Job Performance at T1

<table>
<thead>
<tr>
<th>Step 2</th>
<th>B (SE B)</th>
<th>OR</th>
<th>95% CI</th>
<th>Wald Stat.</th>
<th>p</th>
<th>χ² (df)</th>
<th>R²</th>
<th>B (SE B)</th>
<th>OR</th>
<th>95% CI</th>
<th>Wald Stat.</th>
<th>p</th>
<th>χ² (df)</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job insecurity</td>
<td>0.06 (0.04)</td>
<td>1.06</td>
<td>[0.98; 1.15]</td>
<td>2.03</td>
<td>.154</td>
<td>2.04(1)</td>
<td>.31</td>
<td>0.07 (0.04)</td>
<td>1.07</td>
<td>[1.00; 1.15]</td>
<td>3.56</td>
<td>.059</td>
<td>3.56(1)</td>
<td>.03</td>
</tr>
<tr>
<td>Job insecurity</td>
<td>0.02 (0.05)</td>
<td>1.02</td>
<td>[0.93; 1.11]</td>
<td>0.11</td>
<td>.740</td>
<td>5.97</td>
<td>.32</td>
<td>0.02 (0.04)</td>
<td>1.02</td>
<td>[0.94; 1.10]</td>
<td>0.22</td>
<td>.640</td>
<td>9.05** (1)</td>
<td>.04</td>
</tr>
<tr>
<td>Job insecurity</td>
<td>0.06 (0.02)</td>
<td>1.06</td>
<td>[1.01; 1.11]</td>
<td>5.97</td>
<td>.015</td>
<td>16.13** (2)</td>
<td>.33</td>
<td>0.06 (0.02)</td>
<td>1.06</td>
<td>[1.02; 1.11]</td>
<td>9.47</td>
<td>.002</td>
<td>35.37** (2)</td>
<td>.07</td>
</tr>
<tr>
<td>Job insecurity</td>
<td>0.08 (0.05)</td>
<td>1.08</td>
<td>[0.98; 1.19]</td>
<td>2.40</td>
<td>.122</td>
<td>0.09 (0.04)</td>
<td>1.10</td>
<td>[1.01; 1.20]</td>
<td>4.75</td>
<td>.029</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job insecurity</td>
<td>0.05 (0.02)</td>
<td>1.06</td>
<td>[1.01; 1.11]</td>
<td>5.25</td>
<td>.022</td>
<td>0.06 (0.02)</td>
<td>1.06</td>
<td>[1.02; 1.10]</td>
<td>8.03</td>
<td>.005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimism</td>
<td>0.26 (0.07)</td>
<td>1.30</td>
<td>[1.14; 1.48]</td>
<td>14.77</td>
<td>.000</td>
<td></td>
<td></td>
<td>0.35 (0.06)</td>
<td>1.42</td>
<td>[1.26; 1.60]</td>
<td>32.72</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Super. Supp.</td>
<td>0.03 (0.06)</td>
<td>1.03</td>
<td>[0.92; 1.16]</td>
<td>0.28</td>
<td>.596</td>
<td></td>
<td></td>
<td>0.01 (0.05)</td>
<td>1.01</td>
<td>[0.91; 1.12]</td>
<td>0.05</td>
<td>.827</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 5a

| Job insecurity | 0.08 (0.05) | 1.09 | [0.98; 1.20] | 2.69       | .101  | 0.10 (0.04) | 1.11 | [1.02; 1.21] | 5.50       | .019  |          |    |
| Job insecurity | 0.04 (0.03) | 1.05 | [1.00; 1.10] | 3.11       | .078  | 0.05 (0.02) | 1.05 | [1.00; 1.10] | 4.56       | .033  |          |    |
| Optimism | 0.27 (0.07) | 1.31 | [1.15; 1.50] | 15.48      | .000  | 0.36 (0.06) | 1.43 | [1.27; 1.62] | 33.91       | .000  |          |    |
| Super. Supp. | 0.03 (0.06) | 1.03 | [0.92; 1.16] | 0.30       | .582  | 0.01 (0.05) | 1.01 | [0.91; 1.12] | 0.06        | .812  |          |    |
| JxOptimism | -0.04 (0.04) | 0.97 | [0.89; 1.04] | 0.83       | .361  | -0.05 (0.03) | 0.95 | [0.89; 1.02] | 2.17        | .141  |          |    |
| JxSuper. Supp. | -0.02 (0.03) | 0.98 | [0.92; 1.05] | 0.28       | .594  | 0.00 (0.03) | 1.00 | [0.95; 1.06] | 0.01        | .934  |          |    |

Step 5b

| Job insecurity | 0.10 (0.05) | 1.10 | [0.99; 1.22] | 3.46       | .063  | 0.13 (0.05) | 1.14 | [1.04; 1.25] | 8.28       | .004  |          |    |
| Job insecurity | 0.06 (0.05) | 1.10 | [1.00; 1.10] | 4.54       | .004  | 0.05 (0.02) | 1.05 | [1.01; 1.10] | 5.79       | .016  |          |    |
| Optimism | 0.13 (0.08) | 1.14 | [0.98; 1.33] | 2.74       | .098  | 0.12 (0.07) | 1.13 | [0.99; 1.29] | 3.42       | .064  |          |    |
| Super. Supp. | 0.00 (0.06) | 1.00 | [0.88; 1.13] | 0.00       | .961  | -0.06 (0.05) | 0.94 | [0.84; 1.05] | 1.28        | .258  |          |    |
| Vigour T2 | 0.91 (0.11) | 2.49 | [2.00; 3.11] | 65.68      | <.001  | 0.72 (0.08) | 2.05 | [1.76; 2.39] | 85.14       | <.001  |          |    |
| Vigour T1 | -0.40 (0.12) | 0.67 | [0.53; 0.85] | 11.12      | .001  |          |    |          |    |          |    |          |    |

Note. Job ins. Qu. = Job insecurity Squared, Super. supp. = Supervisory support. (Note continued on next page)
At step 1 age, gender, being in a relationship, having children, education, employment contract and job performance at T1 were entered as controls. Control variables were omitted for reasons of clarity. R² values indicate Nagelkerke R² estimates. 

*p < .05, **p < .01.
Figure 1

![Graph showing the predicted probability of reporting exceptional performance at T1, at job insecurity values within the 90% range (n = 2095).](image)

*Figure 1.* Predicted probability of reporting exceptional performance at T1, at job insecurity values within the 90% range (n = 2095).

Figure 2

![Graph showing the predicted probability of reporting exceptional performance at T2, at job insecurity values within the 90% range at T1 (n = 1289).](image)

*Figure 2.* Predicted probability of reporting exceptional performance at T2, at job insecurity values within the 90% range at T1 (n = 1289).