Workload and Job Insecurity:

Associations with Emotional Well-being and Cognitive Functioning

Paul Zwart

S4304365

Department of Psychology, Rijksuniversiteit Groningen

PSB3E-BT15. Bachelor Thesis

Group: 14

Supervisor: Dr. Anita Keller

Second Evaluator: Lisa Willemsen, MSc

In collaboration with: Ida Bergen, Evelyne Homan, Nynke van der Kooi,

Lotte Krijt, and Selma Rozemeijer

January 29th, 2026

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned

Abstract

Employment plays a central role in many lives but is also the source of multiple work-related stressors that impact employee well-being. The present study draws on Conservation of Resource Theory (COR) to examine whether job insecurity moderates the relationship between a high daily workload and cognitive functioning among employees working 20+ hours per week. The sample consists of $N = 67$ participants, who completed a lunch- and evening questionnaire that measured various work-related stressors such as job insecurity and having a high daily workload. The evening questionnaire was followed by a cognitive memory task in the evening. Results showed that job insecurity and a high daily workload were related to increased fatigue and emotional exhaustion, but no direct association was found with associative memory performance. Despite limitations, the present study highlights the importance of understanding work-related stressors that exert influence on employee well-being, especially in the context of evolving labor market practices.

Keywords: workload, job insecurity, cognitive functioning, COR-Theory, associative memory, fatigue, negative emotions

Workload and Job Insecurity:
Associations with Emotional Well-being and Cognitive Functioning

In the past few decades modern organizations have undergone substantial transformations driven by technological innovation, large-scale restructuring and downsizing (Hitt et al 1994; De Witte, 2005a; Harney et al., 2018). This trend has gained increasing momentum in the past five years due to the COVID-19 pandemic, and these organizational changes were implemented with the aim of reducing costs and improving operational efficiency (Manyika et al., 2024; Medina, 2023). Massive employee layoffs and job displacement have contributed to a destabilization of the labor market and negatively impacted workers' perception of job security (De Witte, 2005a; Medina, 2023). At the same time, the rapid emergence of Artificial (generative) Intelligence (AI) and its integration into daily organizational operations has intensified and accelerated this labor market restructuring, with work-system automation reducing the labor demand across multiple sectors (Holmström & Carroll, 2025; Cucio & Hennig, 2025). Restructuring, automation, digitalization, and AI-driven job replacement have thus reshaped the labor market landscape, and this increase in employment instability has consequently negatively contributed to workers' uncertainty about (long-term) job security.

Against this backdrop of labor market volatility, understanding the role that a job has on an individual's life provides a crucial basis for explaining psychological health outcomes. On average people in the European Union work 36 hours per week, and working a job thus constitutes the major portion of an individual's life (Eurostat, n.d.). A "job absorbs half of one's waking hours" and (often) primarily functions as a source of income by giving financial stability, thereby highlighting the profound effect that it has one one's life (Greenhalgh & Rosenblatt, 2010). However, for many individuals a job is more than just financial stability, it also offers an identity, a sense of purpose and belonging, space for personal growth, and contributes to social connections and physical- and mental well-being. Not having a job, or

being on the verge of losing one's job, then entails losing financial resources and such latent benefits, making job insecurity a psychologically resource-draining condition.

The present study researches cognitive functioning as an outcome of a high workload, and examines whether this relationship is moderated by an employee's job insecurity. It contributes to scientific literature by using longitudinal data to highlight the profound role that a job has in one's life, during an era where restructuring and digitalization seem to have become the new norm.

Theoretical Framework

Conservation of Resources Theory

This overall rationale suitably aligns with the Conservation of Resources Theory (COR) by Steven E. Hobfoll (1989). COR theorizes that individuals strive to obtain, maintain, and protect valuable resources (e.g. financial security, well-being, and social status), and that stress is induced when these resources are threatened or lost (Hobfoll et al., 2018; Bon & Shire, 2022). Building on these principles, a job is valuable because it, first, provides individuals with status, (social-) security, and a sense of purpose, and second, offers financial stability and material security (Hobfoll, 2002). As such, a job functions as an important anchor in one's life that stabilizes and keeps essential resources in place. It follows that, job insecurity poses a major threat to this broader range of resources, and becomes a major life stressor.

Stress is commonly negatively associated with well-being and found to be a strong moderator of memory function because it adversely affects brain regions involved with memory processing (Luethi et. al, 2009). Stress lacks a single all-encompassing definition because it is dependent on multiple contexts and manifests differently in each individual, but often refers to general mental tensions experienced by an employee in their thinking, decision-making, focusing, and other adjacent mental processes (Xiaoming et al., 2014; Epel et al., 2018).

When stress becomes prolonged, which is common in high-workload jobs, it may lead to stress-related exhaustion that depletes attention and (working-) memory (Jonsdottir et al., 2017). Through the scope of COR, a heightened workload itself can also be viewed as a drain on personal resources because it increases the consumption of an individual's time, energy, and attention capacity, while subsequently decreasing the availability to recover from these demands. A job's demands turn into stressors when an employee cannot adequately adhere to them, inducing stress and compromising cognition (European Agency for Safety and Health at Work [EU-OSHA], n.d.-a). Where earlier research has addressed the adverse relationship between job insecurity, a heightened workload, and stress, the present study contributes by examining memory functioning as a cognitive outcome. In addition, the study draws on repeated measurements from the same individuals over an extended period of time, thereby moving beyond the snapshot data typically associated with cross-sectional designs (Figueiredo et al., 2025). By combining a baseline measurement of job insecurity with repeated measurements of workload and memory outcomes, the present study will examine the impact that multiple stressors have on an employee's memory functioning, which is in line with COR's emphasis on cumulative resource depletion.

Workload and Cognitive Functioning

Workload refers to the physical and mental demands from one or multiple tasks an individual must complete within a limited time frame, where the subjective feeling of time pressure has a central role (Ford & Jin, 2015; Wang & Chen, 2016). Excessive workload constitutes the situation wherein an employee's job demands exceed both physical and mental abilities because of limited resources and time (Chen et al., 2025). Research done on the effect that a (feeling of) daily high workload has on cognitive functioning overall shows a negative relationship, namely that an excessive workload will act as stressor and facilitate concentration deficits and memory complaints (Fan & Smith, 2017; Giorgi et al., 2020). These effects are also

linked to prompting other strain responses such as emotional exhaustion and fatigue (Greenglass et al., 2001; Xiaoming et al., 2014).

A recent systematic review of 64 studies on this topic found that a demanding work environment, where workers are under high pressure, has a detrimental effect on cognitive performance and deteriorates attention (Bufano et al., 2024). However, the authors note that the included studies were heterogenous in design which complicated direct comparison. A different study in this adjacent domain specifically focused on the effect that the workload of an entire day has on cognitive performance, and found that "just one day of greater than average workload could impact next day processing speed", but no significant effect was observed for sustained attention or survey response times (Hernandez et al., 2023). Lastly, Allan et al. (2014) found that elevated levels of workload-related occupational stress adversely impaired attention, concentration, and memory. They objectively tested telephone helpline nurses on information-processing errors, with higher experienced stress linked to increased erroneous decisions and further highlighting the relevance of workload-related stress for cognitive function. Overall, findings indicate that workload exhausts an individual's cognitive resources under conditions of high demand, particularly straining cognitive performance in the domains of attention and processing speed.

Cognitive performance has received widespread attention and there is vast conceptualization of the construct, but the term generally refers to the use of attention, memory, processing speed and information processing when performing a series of tasks (Theill et al., 2011; Sandi, 2013; Cauchoix et al., 2018). Drawing on previous research, the present study assumes that a heightened workload is negatively related to cognitive performance, leading to the first hypothesis:

Hypothesis 1. A high daily workload relates to poorer cognitive functioning for employees.

Job Insecurity

In scientific literature, an employee's perception of their employment stability is translated into the concept of 'job insecurity' and there is a substantial body of research on the subject. The construct has been defined in various manners throughout the years, with varying degrees of emphasis, ranging from the anticipation of loss and uncertainty to experiences resembling anticipatory grief (see e.g. De Witte, 1999, 2000, 2016; Sverke et al., 2002; Greenhalgh & Rosenblatt 2010). The EU-OSHA (n.d.-b) provides a broad conceptualization of job insecurity, describing is as the "ongoing feeling of concern about whether one's job will exist in the future, that can be fueled by perceived threat to various aspects of a job." This definition will be used in the present study as it complements job insecurity through the scope of COR by extending it beyond the mere anticipation of job loss, to a continuous threat of one's career and its associated resources.

The greater portion of research on job insecurity and its relation to cognitive functioning has not focused on post-work functioning (i.e., the spillover of job-insecurity-induced cognitive resource depletion into private life) but has narrowed itself to employee-level performance and organizational outcomes. For instance, Adekiya et al., (2023) found that the relationship between an employee's job insecurity and their task performance is significant, where a higher job insecurity predicts lower task performance. That study, however, operationalizes performance by only measuring work outcomes (job quality and quantity under time constraints) and does not capture underlying cognitive performance like memory functioning over a longer period of time. Other studies in the employee-level domain flagged job insecurity as a crucial work stressor that provokes counterproductive work behavior, as it was found to be a significant moderator in turnover intention among employees, especially for those with shorter employment arrangements (De Witte, 1999; Cheng & Chan, 2008). Findings also suggest an association where job insecurity impairs motivation, organizational engagement, and

has a negative effect on physical and mental well-being (Sverke et al., 2002; Cheng & Chan, 2008; De Cuyper et al., 2020; Medina et al., 2023). Overall, job insecurity is recognized as a key stressor that contributes to cognitive overload, emotional strain, and reduced task performance (Sverke et al., 2009; De Witte et al., 2016; Shin et al., 2022).

Extending beyond the workplace into an individual's private life, Jahoda's latent deprivation model states that those who are unemployed have worse mental health outcomes due to a lack of income and of the "latent functions [that employment offers]: time structure, social contact, collective purpose (i.e., the sense of being useful to other people), status, and activity" (Paul et al., 2023). Research finds that job insecurity negatively influences family well-being, marital relationships, and personal mental and physical health (Larson et al., 1994; Lim & Loo, 2003; Greenhalgh & Rossenblatt, 2010). A recent study conducted by Yu et al. (2022) offers partial insight into the effect of job insecurity on cognitive functioning, and found that perceived job insecurity was associated with lower memory scores over a period of several years among older workers (55+) in England and the United States.

Overall, the scientific literature highlighted above suggests that on the employee level, job insecurity seems to predict lower task efficiency and other general counterproductive work behaviors. In addition, it also affects the private domain by putting strain on mental health and social relations. Its relation to memory functioning remains underexplored in this area of research and no sufficient conclusion can be drawn. The present study seeks to evaluate whether a heightened workload on a day-to-day basis, specifically for those suffering from a high perception of job insecurity, could impact memory performance outside of work.

The COR framework offers a comprehensive basis to tackle the lack of relational clarity, and aids in understanding how these stressors may jointly impair post-work cognitive functioning. According to Hobfoll et al. (2018), a core principle of the theory is that people must invest personal resources (e.g. time, energy, attention) in order to retain resources and

counter resource loss (e.g. employment, financial security). Job insecurity and a heightened workload may very likely be intertwined through an interacting mechanism of resource depletion: first, job insecurity turns into a stressor because it puts prolonged strain on an individual by consistently threatening their personal resources. To cope with the situation, people invest in their cognitive and emotional regulation, which depletes personal resources, such as effort, sustained attention, memory, and processing speed (Hobfoll 1989, De Witte, 1999). Secondly, and simultaneously, exceeding job demands requires additional cognitive and/or physical effort, which also takes from their limited personal resources (Spector & Jex, 1998; Fan & Smith 2017). Put simply, the added threat of losing employment may increase the use of one's personal resources in order to cope, when one is already dealing with a high workload. Job insecurity may also make a higher workload more threatening because employees have less perceived room to make any mistakes, leaving fewer resources available. Through the interaction of job insecurity and a high workload, fewer personal resources remain available throughout, and especially at the end, of the day, possibly leading to worse memory test outcomes (Allan et al., 2014; Hernandez et al., 2023). This inference therefore leads to the second hypothesis:

Hypothesis 2. The negative relationship between a high workload and cognitive functioning will be amplified for employees with higher levels of job insecurity.

Method

Setting

This study was conducted as part of a larger project that sought to research the effect that various occupational stressors might have on cognitive functioning, and took place in October and November of 2025. Within the project, a broad range of work-related variables were measured through a baseline-questionnaire followed by a two-week daily questionnaire to cover the broader context in which stress processes occur.

Participants

The baseline-questionnaire was filled in by a total of 199 participants. However, the daily follow-up was not adhered to by the entire initial baseline-sample. Consequently, only participants who provided sufficient data for the daily-questionnaire and memory test were eventually included in the final analysis. This group consisted of $N = 67$ participants, who were between 18-63 years old, with ($M = 42.18$; $SD = 14.81$). This sample further consisted of 39 women (58,2%) and 28 men (41.8%), all of whom live in Europe. Participants work between 20-53 hours per week, with ($M = 35.31$; $SD = 7.31$).

Procedure

Participants were recruited through network-based sampling and online flyering and could sign up via a URL sign-up link or a QR-code that led to the baseline questionnaire. These recruitment flyers were created in English, Dutch, and German, and distributed through social media platforms such as WhatsApp and Instagram (see Appendix A). The flyer also included an incentive, whereby participants who completed the study were eligible to win €50.00. Researchers invited relatives, friends, colleagues, and other acquaintances who were currently employed and worked for twenty- or more hours per week. During this process, participants were requested to share the study and invite individuals who met minimum work-hours criterion.

At the start of the baseline questionnaire, individuals were provided an information sheet about the study and confirmed their informed consent statement affirming their rights as participants. Individuals who agreed to participate were then screened (for minimum work-hours), and the questionnaire assessed demographics, measures of physical activity, and other work-related factors such as their feelings on job insecurity and other job-related demands. The entire baseline-screening takes about 11.5 minutes to complete.

This baseline-screening was followed by a 2-week period wherein participants

completed a daily questionnaire during workdays, consisting of two parts (about four minutes each). Participants first completed an afternoon-questionnaire, filled in during lunchbreaks, and an additional evening-questionnaire at the end of their day. These daily questionnaires measured fluctuating variables such as workload, sleep quality, and emotional well-being. The evening-questionnaire was concluded by a 6-minute associative memory test designed to assess the participant's cognitive functioning and learning abilities (e.g. learning and recalling buildings).

Measures

Workload

Workload was measured through indicators derived from the Quantitative Workload Inventory (QWI) an adapted to a daily questionnaire format (Spector & Jex, 1998). The items included work-related workload and time pressure demands, specifically perceived effort, time pressure, and quantitative workload.

During the afternoon-questionnaire, participants answered through three separate statements rated on a 5-point Likert Scale (1 = *Strongly disagree*, 5 = *Strongly agree*). An example question is "*Today, my work required me to work really hard,*" of which higher scores represent a higher subjective experience of workload. The inter-item reliability of these three items, denoted with Cronbach's alpha, was $\alpha = 0.738$.

Job Insecurity

Job insecurity was measured using the Job Insecurity Scale (JIS) developed by De Witte (2000). The measurement was included in the baseline-questionnaire and consisted of three statements rated on the same 5-point Likert scale as workload. An example statement is "*I feel insecure about the future of my job,*" where higher scores represent a higher subjective experience of insecurity about one's employment. The inter-item reliability of these three items was $\alpha = 0.822$.

Memory Test

Cognitive performance was measured through a series of memory tests at the end of the evening-questionnaire using the Seattle-Groningen Memory Assessment (SGMA). Through the SGMA participants learned and recalled associations (e.g. flags and country names) in a manner that "resembles toponym or vocabulary flash-card learning" (Wilschut et al., 2025).

The assessment was tailored to participants via an online environment called SlimStampen, where the SGMA tested declarative memory in a multiple-choice format with feedback. Outcome scores are based on the models' estimation of a participant's speed of forgetting, accuracy, and response times, where higher scores represent better memory (Wilschut et al., 2025).

Analytical Procedure

The data collected through the daily questionnaires was aggregated by computing mean scores for each of the separate items (averaged across one week). For each participant, this resulted in an average score for variables such as workload and job insecurity, which subsequently were mean-centered and used in the statistical analysis. This approach was chosen to reduce the complexity of the data and simplify the statistical procedure.

The present study aimed to research the relationship between workload and cognitive performance, and test whether job insecurity moderates this relationship. This analysis was done through a moderation analysis using PROCESS, in which workload acted as the predictor, job insecurity as the moderator, and memory performance as the outcome.

Results

Descriptive statistics

The statistical analysis began with calculating the descriptive statistics for the main study variables (workload, job insecurity) and that of the cognitive performance measure (memory test) for each of the participants, which are presented in Table 1.

Table 1

Means, standard deviations and correlations of main variables

	M	SD	1	2	3
1. Workload	2.99	0.64	-		
2. Job Insecurity	1.72	0.78	-.11	-	
3. Memory test	90.63	25.96	-.11	.03	-

Note. M represents the mean and SD the standard deviation.

In addition, this table also shows the correlations between workload, job insecurity, and the memory test. None of the correlations were statistically significant.

Assumptions check

Before starting with the moderation analysis, the assumptions of linearity, homoscedasticity, independence of observations, and normality of residuals were checked (see Appendix B). Visual analysis of scatterplots indicated no extreme deviations from a linear relationship between workload, job insecurity, and the memory test. Homoscedasticity was assessed with a residual-vs.-predicted-values-plot, where residuals were divided evenly around the zero line without showing substantial violations. In the study, participants were gathered through networking and presumably participated individually throughout the project. To make sure the assumption of independent observations was met, a Durbin-Watson test was performed to detect the presence of autocorrelation. The values were close to 2 (DW = 1.80; 1.84) indicating no evidence of autocorrelation, thereby meeting the assumption of independent observations (Stanislas et al., 2023). Lastly, a visual inspection of the QQ-plot did not show any violations for the assumption of normality of residuals.

Primary Analysis and Hypotheses

Hypothesis 1

Hypothesis 1 stated that a higher daily workload would relate to poorer cognitive functioning for employees. Results showed that workload did not significantly predict outcomes on the memory test (b = -4.44; SE = 4.97, p = .372, with 95% CI [-14.18; 5.32]). The explained variance of the model was low (R^2 = .01). Thus, hypothesis 1 was not supported.

Hypothesis 2

Hypothesis 2 proposed that the negative relationship between a high workload and cognitive functioning would be amplified for employees with higher levels of job insecurity. Results showed that job insecurity itself did not significantly predict memory performance (b = -0.15; SE = 4.24, p = .972, with 95% CI [-8.46; 8.17]. The interaction between Workload × Job Insecurity was also not significant (b = -3.90; SE = 6.77; p = .565, with 95% CI [-17.18; 9.38]). The interaction model had low explained variance (R^2 = .02). These findings indicate that job insecurity does not moderate the relationship between a high workload and memory performance, and therefore hypothesis 2 was not supported.

Exploratory Analysis

Findings from the primary analysis do not show a meaningful relationship between the main variables and the memory test. Based on the literature research and COR however, workload and job insecurity are generally associated with negative emotional well-being and cognitive drain. To see whether a similar pattern was present within this study, an exploratory analysis was therefore conducted. The daily evening-questionnaires included questions representative of emotional well-being and cognitive drain to perform this analysis with, namely negative emotions and fatigue.

During the evening-questionnaire, participants were asked to reflect on their (negative) emotional mood during that day, through statements answering the question "*How did you feel*

today?" on a 5-point Likert scale (1 = *Not at all*, 5 = S*everely*), for example regarding anxiety. It had a good inter-item reliability of $\alpha = 0.833$. At the same survey-moment, participants also filled in how exhausted they felt after their workday to measure fatigue. This was done with the same 5-point Likert Scale and question as above, and an example includes "*Felt tired or fatigued*". This construct too had a good inter-item correlation ($\alpha = 0.844$).

Table 2.

Means, standard deviations and correlations with confidence intervals exploratory variables.

	M	SD	1	2	3	4
1. Workload	2.99	0.64				
2. Job Insecurity	1.72	0.78	-.11 [-.34; .14]			
3. Negative Emotions	1.62	0.66	.20 [-.05; .42]	.35** [.12; .55]		
4. Fatigue	2.09	0.79	.27* [.03; .48]	.36** [.13; .55]	.65** [.48; .77]	

*Note. Note. M represents the mean and SD the standard deviation. Values in the brackets indicate the 95% confidence interval for the correlation. * indicates p<.05. ** indicates p<.01.*

The descriptives were calculated together with a set of correlation analyses between workload, job insecurity, and the computed item means of negative emotions, and fatigue, as shown in Table 2. A higher workload during the day is significantly correlated with feelings of fatigue in the evening. Job insecurity measured during the baseline questionnaire is significantly correlated with feelings of negative emotions and fatigue at the end of an employee's day. Then, the general assumptions of a regression model were checked for the variables used in the exploratory analysis. There were no large violations of the assumptions (see Appendix B).

These findings provided a sufficient basis to continue with an exploratory regression analysis, in which workload and job insecurity acted as predictors for negative emotions and fatigue. First, the overall regression model where workload and job insecurity predict negative

emotions was significant $F(2,64) = 7.04$, $p = 0.002$, explaining 18% of the variance in negative emotions ($R^2 = .180$). Here, workload significantly predicted negative emotions ($b = 0.24$; $SE = 0.11$; $p = .041$, with 95% CI [.01; .46]). Job insecurity also significantly predicted negative emotions ($b = 0.31$; $SE = .09$; $p = .001$, with 95% CI [.12; .49]. Secondly, a regression analysis was done where workload and job insecurity predicted fatigue, which was also significant $F(2,64) = 9.14$, $p = 0.001$, explaining 22.2% of the variance in fatigue ($R^2 = .222$). Workload significantly predicted fatigue ($b = 0.38$; $SE = 0.14$; $p = .007$, with 95% CI [.11; .65]). Job insecurity also significantly predicted fatigue ($b = 0.40$; $SE = .11$; $p = .001$, with 95% CI [.17; .62].

Discussion

Discussion of the Results

The present study sought to investigate the relationship between the amount of experienced workload during the day and an employee's subsequent cognitive functioning in the evening by means of a memory test. In addition, the goal was to examine whether the presence of feelings of job insecurity among employees would moderate this relationship. The overall theoretical rationale for this research was grounded in the principles of COR by Hobfoll (1989). This framework provided insight into the manner through which individuals strive to protect valuable resources in their lives, such as their job, financial stability, and well-being. Based on this framework, it was anticipated that a high workload during the day would gradually drain an individual's cognitive 'battery', thereby resulting in poorer cognitive functioning during the evening, and thus leading to worse outcomes on the memory test. Moreover, this prediction was extended by assuming that the presence of perceived job insecurity would act as an additional drain on cognitive resources, making these individuals perform even worse on the memory test.

Contrary to expectations, the results of the primary analysis did not provide evidence

that the presence of a high workload was associated with poorer cognitive functioning, nor that job insecurity moderated this relationship. However, the exploratory analysis demonstrated that a higher workload was reflective of fatigue, and that job insecurity was associated both with fatigue as and with negative emotions.

Although the literature indicated that higher workloads impair cognitive functioning such as attention and processing speed, varying results were found in relation to sustained attention and memory (Xiaoming et al., 2014; Fan & Smith 2017; Bufano et al., 2024). For example, Hernandez et al. (2023) did not find a link between increased work demand and sustained attention impairment, and the study of Allan et al. (2014) showed a decline in memory but specifically "while dealing with patients" during the job. From the perspective of COR in the present study, increased workload may thus have predominantly manifested itself in resource depletion by inducing fatigue.

However, performance on the relatively brief memory assessment may then have been preserved either because individuals were able to compensate cognitive capabilities through additional effort, or because individuals had more resources available to deal with the memory test when workload demand was lower. These two interpretations cannot, however, be tested, because the data for the analysis was aggregated as a means to simplify the statistical procedure, and this process could have possibly obscured the effect that day-to-day fluctuations in workload had on cognitive performance. Alternatively, personal resources may have partially recovered during the interval between the end of an employee's workday and the moment they performed the memory assessment, thereby leaving individuals with renewed resources to learn and recall associations at the end of their day, rather than during or directly at the end of the work shift.

The absence of an association between job insecurity and cognitive performance partially supports previous research on this same relationship by Yu et al. (2022). The authors

found an association between the two constructs in the baseline questionnaire, but posited that job insecurity was not linked to a subsequent decline rate of memory performance. From the perspective of COR in the present study, job insecurity presumably acted as a chronic stressor that exerted adverse influence by inducing fatigue and negative emotional feelings. Job insecurity thus negatively impacts motivational and energetic well-being, but does not constrain the cognitive capabilities needed to perform well in the memory test. As Yu et al. (2022) already noted, the scientific literature on the association between perceived job insecurity and memory function remains limited, in turn limiting insight into the exact underlying mechanisms involved.

Limitations

Various limitations impacted this study, as acknowledged here. First, the data was aggregated to simplify the statistical procedure, but this has the possible downside of weakening statistical inference (Fisher et al., 2018). Computing mean scores for the different measures inherently removes day-to-day fluctuations, which may have been theoretically relevant for more dynamic psychological processes, such as cognitive resource depletion and recovery throughout the day, and between days.

Second, prior research operationalized workload using relatively broad indicators, for instance, the NASA Task Load Index (see e.g. Hernandez et al., 2023), which combines various types of demands (e.g. Physical demand, mental demand, frustration). In contrast, the present study narrowed the operationalization of workload by solely focusing on work-related demands, such as perceived effort and time pressure, derived from the Quantitative Workload Inventory (QWI) (Spector & Jex, 1998). This may have minimalized construct-irrelevant noise, but it should be noted that this might limit comparability with studies using broader measures of workload. Moreover, measurement for workload (and job insecurity) relied on self-reported data, which is inherently prone to some biases possibly affecting response authenticity, such as

response bias (Rosenman et al., 2011).

Third, the original baseline questionnaire contained 199 participants, which was cut down to 67 due to incomplete responses to the daily questionnaires, possibly limiting the statistical power of the dataset (Serdar et al., 2021). Such drop-out rates are not uncommon in daily diary research because assessment frequency may cause practical limitations for participants and increase perceived burden (Newcomb et al., 2018). This could have been the case for individuals facing, for example, higher levels of workload and time pressure, possibly reducing item outcome variability because of attrition (Asendrop et al., 2014). Furthermore, the sample consisted entirely of European residents, most of whom obtained a university degree, limiting generalizability outside this high educated population.

Lastly, cognitive functioning was assessed through a series of relatively brief associative memory tests using the SGMA in the online environment of SlimStampen. SGMA outcome scores are reflective of performance in key memory processes, especially the associative memory domain and speed of forgetting (Wilschut et al., 2025). The test, however, has weaker correlations with language (i.e. fluency) and executive functioning, and may therefore not encompass broader cognitive ability (Wilschut et al., 2025). It might then be less sensitive to effects associated with a daily high workload, such as lesser attention (Bufano et al., 2024).

Implications and Future Research

The results suggest that high workload during the day negatively impacts feelings of fatigue at the end of the day. This pattern is also reflective of job insecurity, which additionally seems to negatively influence emotional well-being. From the theoretical perspective of COR, these two work-related stressors might not immediately deplete resources needed to effectively complete tasks in the associative memory domain, but do impact underlying affective states. Future research could therefore examine whether, for example, emotional depletion or fatigue influences the relationship between job insecurity, workload, and cognitive functioning. Such

findings are central for the field of Work and Organizational Psychology they underlines that employee assessment should extend beyond mere performance- and well-being within an organization, but also consider well-being outside of work. Prolonged negative emotional feelings and fatigue can seriously impact an individual's health, and cause chronic conditions that limit functioning (Leger et al., 2018).

Future research may benefit from a design that can more accurately capture day-to-day fluctuations in job insecurity and workload among employees. For example, Johnston et al. (2019) carried out a study where participants rated fatigue, demand, control, and reward every 1.5 hours using electronic diaries. This approach would provide more specific data of within-day variability. In the present study job insecurity and workload measures relied completely on self-reported indicators, which could also be complemented by more objective measures, such as a heart-rate monitor (Johnston et al., 2019). Moreover, future studies may benefit from assessing the cognitive domain beyond the SGMA test battery for associative memory, by including tasks related to the broader cognitive domain, such as attention, concentration, and executive functioning (see e.g. Allan et al. (2014).

Lastly, a more diverse respondent pool in terms of ethnicity and socioeconomic status could aid future studies in the ability to generalize effects to other populations, and benefit scientific understanding of cross-cultural employee well-being. This can be achieved by including more language options for the questionnaires and memory assessments.

Conclusion

Over the past few decades, the labor market has undergone a large transition where mass layoffs, cost reduction, and increasing operational efficiency through automation and digitalization have intertwined, leading to greater employment instability. At the center of this turmoil stand employees who have to face an increase in work-related stressors. Although the present study did not find a direct relationship where memory functioning was impaired by

increased workload or job insecurity, the former seems to negatively impact fatigue, whereas the latter, on top of being related to fatigue, also seems to be associated with negative emotional well-being. Understanding how these work-related stressors impact individuals is crucial, as employment is often a central aspect in an individual's life and represents much more than just financial security. Having a job gives a sense of purpose, belonging, and a (social-) identity, and the stressors associated with this also impact one's private life. Because of this, research on the psychological consequences of workload and job insecurity requires further development as organizations themselves also continue to evolve in terms of restructuring and increasing demands.

References

Allan, J. L., Farquharson, B., Johnston, D. W., Jones, M. C., Choudhary, C. J., & Johnston, M. (2014). Stress in telephone helpline nurses is associated with failures of concentration, attention and memory, and with more conservative referral decisions. *British Journal Of Psychology, 105(2)*, 200–213. https://doi.org/10.1111/bjop.12030

Adekiya, A. (2023). Perceived job insecurity and task performance: what aspect of performance is related to which facet of job insecurity. Current Psychology : A Journal for Diverse Perspectives on Diverse Psychological Issues, 43(2), 1340–1358. https://doi.org/10.1007/s12144-023-04408-4

Asendorpf, J. B., Van de Schoot, R., Denissen, J. J. A., & Hutteman, R. (2014). Reducing bias due to systematic attrition in longitudinal studies: The benefits of multiple imputation. *International Journal Of Behavioral Development*, *38*(5), 453–460. https://doi.org/10.1177/0165025414542713

Bon, A. T., & Shire, A. M. (2022). Review of Conservation of Resources Theory in Job Demands and Resources Model. International Journal of Global Optimization and Its Application, 1(4), 236–248. https://doi.org/10.56225/ijgoia.v1i4.102

Bufano, P., Di Tecco, C., Fattori, A., Barnini, T., Comotti, A., Ciocan, C., Ferrari, L., Mastorci, F., Laurino, M., & Bonzini, M. (2024). The effects of work on cognitive functions: a systematic review. *Frontiers in Psychology*, *15*. https://doi.org/10.3389/fpsyg.2024.1351625

Cauchoix, M., Chow, P. K. Y., Van Horik, J. O., Atance, C. M., Barbeau, E. J., Barragan-Jason, G., Bize, P., Boussard, A., Buechel, S. D., Cabirol, A., Cauchard, L., Claidière, N., Dalesman, S., Devaud, J. M., Didic, M., Doligez, B., Fagot, J., Fichtel, C., Malsburg, J. H. D., Morand-Ferron, J. (2018). The repeatability of cognitive performance: a meta-

analysis. *Philosophical Transactions Of The Royal Society B Biological Sciences, 373(1756), 20170281*. https://doi.org/10.1098/rstb.2017.0281

Chen, Y.-C., Wu, J.-Y., & Chu, H.-C. (2025). Correlations of workload with personality traits, perceived negative and positive behaviors, and organizational factors: A meta analysis. *Work*. https://doi.org/10.1177/10519815251365103

Cheng, G. H.-L., & Chan, D. K.-S. (2008). Who Suffers More from Job Insecurity? A Meta-Analytic Review. *Applied Psychology, 57(2), 272–303*. https://doi.org/10.1111/j.1464-0597.2007.00312.x

Cucio, M., & Hennig, T. (2025). Artificial Intelligence and the Philippine Labor Market: Mapping Occupational Exposure and Complementarity. *IMF Working Papers*, 2025(043). https://doi.org/10.5089/9798229001977.001

De Cuyper, N., Schreurs, B., De Witte, H., & Selenko, E. (2020). Impact of job insecurity on job performance introduction. *Career Development International*, *25*(3), 221-228. https://doi.org/10.1108/cdi-06-2020-332

De Witte, H. (1999). Job Insecurity and Psychological Well-being: Review of the Literature and Exploration of Some Unresolved Issues. *European Journal of Work and Organizational Psychology*, *8*(2), 155–177. https://doi.org/10.1080/135943299398302

De Witte, H. (2000). Arbeidsethos en jobonzekerheid: Meting en gevolgen voor welzijn, tevredenheid en inzet op het werk [Work ethic and job insecurity: Assessment and consequences for wellbeing, satisfaction and performance at work]. In R. Bouwen, K. De Witte, H. De Witte, & T. Taillieu (Eds.), Van groep naar gemeenschap [From group to community]. Liber Amicorum Prof. Dr. Leo Lagrou (pp. 325–350). Leuven, Belgium: Garant.

De Witte, H. (2005a). Long-term job insecurity, job satisfaction and organisational attitudes: Test of Warr's Curvilinear Hypothesis. *SA Journal of Industrial Psychology*, *31*(4). https://doi.org/10.4102/sajip.v31i4.212

De Witte, H. (2005b). Job insecurity: Review of the international literature on definitions, prevalence, antecedents and consequences. *SA Journal of Industrial Psychology*, *31*(4). https://doi.org/10.4102/sajip.v31i4.200

De Witte, H., Pienaar, J., & De Cuyper, N. (2016). Review of 30 Years of Longitudinal Studies on the Association Between Job Insecurity and Health and Well-Being: Is There Causal Evidence? *Australian Psychologist*, *51*(1), 18–31. https://doi.org/10.1111/ap.12176

Epel, E. S., Crosswell, A. D., Mayer, S. E., Prather, A. A., Slavich, G. M., Puterman, E., & Mendes, W. B. (2018). More than a feeling: A unified view of stress measurement for population science. *Frontiers in Neuroendocrinology*, *49*, 146–169. https://doi.org/10.1016/j.yfrne.2018.03.00

European Agency for Safety and Health at Work. (n.d-a.). *Job demands*. OSHwiki. Retrieved November 21, 2025, from https://oshwiki.osha.europa.eu/en/themes/job-demands

European Agency for Safety and Health at Work. (n.d.-b). *Job insecurity*. Safety and health at work EU-OSHA. Retrieved January 3, 2026, from https://osha.europa.eu/en/tools-and-resources/eu-osha-thesaurus/term/70172i

Eurostat (n.d.). *Labour market data (dataset code: lfsa_ewhan2) [Data set]*. Retrieved January 3, 2026, from https://ec.europa.eu/eurostat/databrowser/view/lfsa_ewhan2__custom_16666914/bookmark/table?lang=en&bookmarkId=2bce8aa4-a165-47d3-bfae-10f507286684&c=1747060927661&page=time:2024

Fan, J., & Smith, A. P. (2017). The Impact of Workload and Fatigue on Performance. In *Communications in computer and information science*, 90 105. https://doi.org/10.1007/978-3-319-61061-0_6

Fisher, A. J., Medaglia, J. D., & Jeronimus, B. F. (2018). Lack of group-to-individual generalizability is a threat to human subjects research. Proceedings of the National Academy of Sciences, 115(27), E6106–E6115. https://doi.org/10.1073/pnas.1711978115

Figueiredo, R. G., Patino, C. M., & Ferreira, J. C. (2025). Cross-sectional studies: understanding applications, methodological issues, and valuable insights. *Jornal brasileiro de pneumologia : publicacao oficial da Sociedade Brasileira de Pneumologia e Tisilogia*, *51*(1), e20250047. https://doi.org/10.36416/1806-3756/e20250047

Ford, M. T., & Jin, J. (2015). Incongruence between workload and occupational norms for time pressure predicts depressive symptoms. *European Journal of Work and Organizational Psychology*, *24*(1), 88–100. https://doi.org/10.1080/1359432X.2013.858701

Giorgi, G., Lecca, L. I., Leon-Perez, J. M., Pignata, S., Topa, G., & Mucci, N. (2020). Emerging Issues in Occupational Disease: Mental Health in the Aging Working Population and Cognitive Impairment—A Narrative Review. *BioMed Research International*, *2020*, 1–6. https://doi.org/10.1155/2020/1742123

Greenhalgh, L., & Rosenblatt, Z. (2010). Evolution of Research on Job Insecurity. *International Studies Of Management And Organization*, *40*(1), 6–19. https://doi.org/10.2753/imo0020-8825400101

Greenglass, E. R., Burke, R. J., & Fiksenbaum, L. (2001). Workload and burnout in nurses. *Journal Of Community & Applied Social Psychology*, 11(3), 211–215. https://doi.org/10.1002/casp.614

Harney, B., Fu, N., & Freeney, Y. (2018). Balancing tensions: Buffering the impact of organisational restructuring and downsizing on employee well-being. *Human Resource Management Journal, 28(2)*, 235–254. https://doi.org/10.1111/1748-8583.12175

Hernandez, R., Jin, H., Pyatak, E. A., Roll, S. C., & Schneider, S. (2023). Workers' whole day workload and next day cognitive performance. *Current Psychology*, 43(3), 2005–2018. https://doi.org/10.1007/s12144-023-04400-y

Hitt, M., Keats, B., Harback, H. & Nixon, R. (1994). Rightsizingbuilding and maintaining strategic leadership: A longterm competitiveness. *Organisational Dynamics, 23*, 18-32

Hobfoll, S. E. (1989). Conservation of resources. A new attempt at conceptualizing stress. *The American Psychologist, 44(3)*, 513–524.

Hobfoll, S. E. (2002). Social and Psychological Resources and Adaptation. *Review of General Psychology*, *6*(4), 307–324. https://doi.org/10.1037/1089-2680.6.4.307

Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of Resources in the Organizational Context: The Reality of Resources and Their Consequences. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Holmström, J., & Carroll, N. (2025). How organizations can innovate with generative AI. *Business Horizons, 68(5)*, 559–573. https://doi.org/10.1016/j.bushor.2024.02.010

Larson, J. H., Wilson, S. M., & Beley, R. (1994). The Impact of Job Insecurity on Marital and Family Relationships. *Family Relations*, *43*(2), 138. https://doi.org/10.2307/585315

Leger, K. A., Charles, S. T., & Almeida, D. M. (2018). Let It Go: Lingering Negative Affect in Response to Daily Stressors Is Associated With Physical Health Years Later. *Psychological Science, 29(8), 1283–1290.* https://doi.org/10.1177/0956797618763097

Lim, V. K., & Loo, G. L. (2003). Effects of parental job insecurity and parenting behaviors on youth's self-efficacy and work attitudes. *Journal Of Vocational Behavior*, *63*(1), 86–98. https://doi.org/10.1016/s0001-8791(02)00020-9

Johnston, D. W., Allan, J. L., Powell, D. J. H., Jones, M. C., Farquharson, B., Bell, C., & Johnston, M. (2019). Why does work cause fatigue? A real-time investigation of fatigue, and determinants of fatigue in nurses working 12-hour shifts. *Annals of Behavioral Medicine : A Publication of the Society of Behavioral Medicine*, *53*(6), 551–562. https://doi.org/10.1093/abm/kay065

Jonsdottir, I. H., Nordlund, A., Ellbin, S., Ljung, T., Glise, K., Währborg, P., Sjörs, A., & Wallin, A. (2017). Working memory and attention are still impaired after three years in patients with stress-related exhaustion. *Scandinavian Journal Of Psychology*, *58*(6), 504–509. https://doi.org/10.1111/sjop.12394

Lee, C., Huang, G.-H., & Ashford, S. J. (2018). Job Insecurity and the Changing Workplace: Recent Developments and the Future Trends in Job Insecurity Research. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*, 335–359. https://doi.org/10.1146/annurev-orgpsych-032117-104651

Luethi, M., Meier, B., & Sandi, C. (2008). Stress effects on working memory, explicit memory, and implicit memory for neutral and emotional stimuli in healthy men. *Frontiers in Behavioral Neuroscience*, *2*, 5. https://doi.org/10.3389/neuro.08.005.2008

Manyika, J., Lund, S., Chui, M., Bughin, J., Woetzel, L., Batra, P., Ko, R., & Sanghvi, S. (2024, July 16). *Jobs Lost, jobs gained: What the future of work will mean for jobs, skills, and wages*. McKinsey & Company.

https://www.mckinsey.com/featuredinsights/future-of-work/jobs-lost-jobs-gained-what-the-future-of-work-will-mean-for-jobs-skills-and-wages

Muñoz Medina, F., López Bohle, S. A., Beurden, J. V., Chambel, M. J., & Ugarte, S. M. (2023). The relationship between job insecurity and employee performance: a systematic literature review and research agenda. *Career Development International*, *28*(6/7), 589–632.

Newcomb, M. E., Swann, G., Estabrook, R., Corden, M., Begale, M., Ashbeck, A., Mohr, D., & Mustanski, B. (2018). Patterns and Predictors of Compliance in a Prospective Diary Study of Substance Use and Sexual Behavior in a Sample of Young Men Who Have Sex With Men. *Assessment*, *25*(4), 403–414. https://doi.org/10.1177/1073191116667584

Paul, K. I., Scholl, H., Moser, K., Zechmann, A., & Batinic, B. (2023). Employment status, psychological needs, and mental health: Meta-analytic findings concerning the latent deprivation model. *Frontiers in Psychology*, *14*, 1017358. https://doi.org/10.3389/fpsyg.2023.1017358

Rosenman, R., Tennekoon, V., & Hill, L. G. (2011). Measuring bias in self-reported data. International journal of behavioural & healthcare research, 2(4), 320–332. https://doi.org/10.1504/IJBHR.2011.043414

Sandi, C. (2013). Stress and cognition. *Wiley Interdisciplinary Reviews. Cognitive Science*, *4*(3), 245–261. https://doi.org/10.1002/wcs.1222

Serdar, C. C., Cihan, M., Yücel, D., & Serdar, M. A. (2021). Sample size, power and effect size revisited: simplified and practical approaches in pre-clinical, clinical and laboratory studies. Biochemia medica, 31(1), 010502. https://doi.org/10.11613/BM.2021.010502

Shin, Y., Hur, W., & Rhee, S. (2022b). A Longitudinal Investigation of the Roles of Cognitive and Affective Job Insecurity Before and During the Pandemic. *European Journal Of Psychology Open*, *81*(4), 105–114. https://doi.org/10.1024/2673-8627/a000031

Stanislas, T. T., Komadja, G. C., Obianyo, I. I., Ayeni, O., Mahamat, A. A., Tendo, J. F., & Savastano Junior, H. (2023). Multivariate regression approaches to predict the flexural performance of cellulose fibre reinforced extruded earth bricks for sustainable buildings. *Cleaner Materials*, *7*. https://doi.org/10.1016/j.clema.2023.100180

Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal Conflict at Work Scale, Organizational Constraints Scale, Quantitative Workload Inventory, and Physical Symptoms Inventory. *Journal Of Occupational Health Psychology*, *3*(4), 356–367. https://doi.org/10.1037/1076-8998.3.4.356

Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology, 7*(3), 242–264. https://doi.org/10.1037/1076-8998.7.3.242

Sverke, M., Låstad, L., Hellgren, J., Richter, A., & Näswall, K. (2019). A Meta-Analysis of Job Insecurity and Employee Performance: Testing Temporal Aspects, Rating Source, Welfare Regime, and Union Density as Moderators. *International Journal Of Environmental Research And Public Health, 16(14)*, 25-36. https://doi.org/10.3390/ijerph16142536

Theill, N., Martin, M., Schumacher, V., Bridenbaugh, S. A., & Kressig, R. W. (2011). Simultaneously Measuring Gait and Cognitive Performance in Cognitively Healthy and Cognitively Impaired Older Adults: The Basel Motor-Cognition Dual-Task Paradigm. *Journal of the American Geriatrics Society*, *59*(6), 1012–1018. https://doi.org/10.1111/j.1532-5415.2011.03429.x

Wang, L., He, X., & Chen, Y. (2016). Quantitative relationship model between workload and time pressure under different flight operation tasks. *International Journal of Industrial Ergonomics*, *54*, 93–102. https://doi.org/10.1016/j.ergon.2016.05.008

Wilschut, T. J., Knobbe, T. J., Stocco, A., Hake, H., Posthumus, A. M., Ziengs, A. L., TransplantLines Investigators, Blokzijl, H., Damman, K., de Meijer, V. E., de Borst, M. H., Buunk, A. M., Spikman, J. M., van Rijn, H., & Bakker, S. J. L. (2025). Computational assessment of memory function in kidney transplant recipients and donors. *medRxiv*. https://doi.org/10.1101/2025.10.01.25337071

Xiaoming, Y., Ma, B. J., Chang, C. L., & Shieh, C. J. (2014). Effects of workload on burnout and turnover intention of medical staff: A study. *Studies on ethno-medicine*, *8*(3), 229-237.

Appendix A

Figure A1

Example of English flyer used to recruit study participants.

Appendix B

Assumption Checks for the Primary Analysis

Figure B1

Scatterplots examining linearity between the main variables.

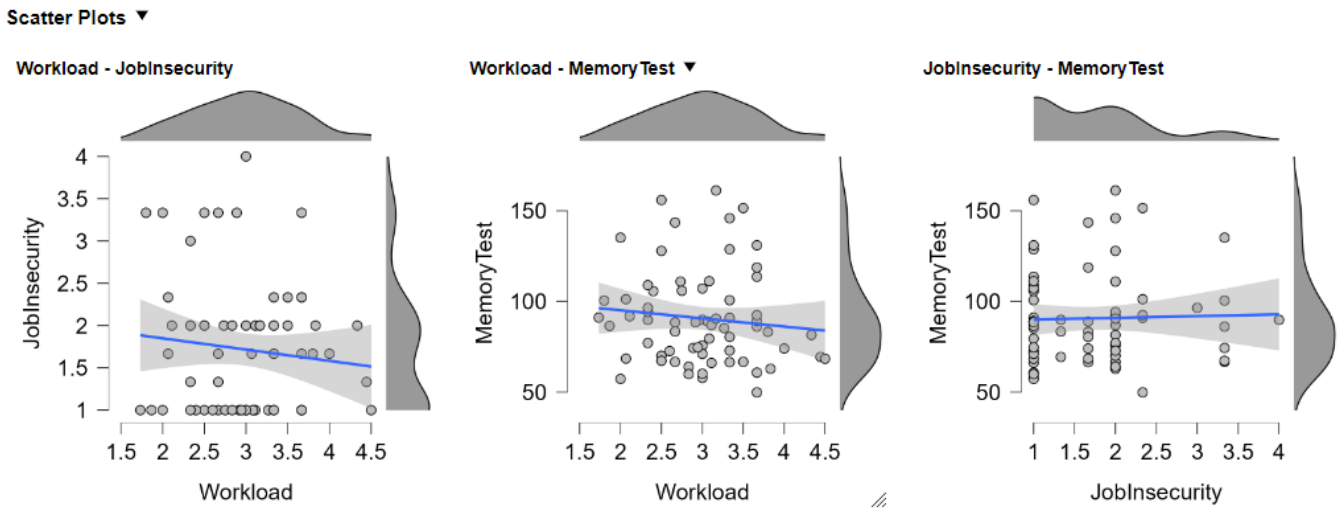


Figure B2

Residual-versus-predicted-values-plot examining homoscedasticity between the main variables.

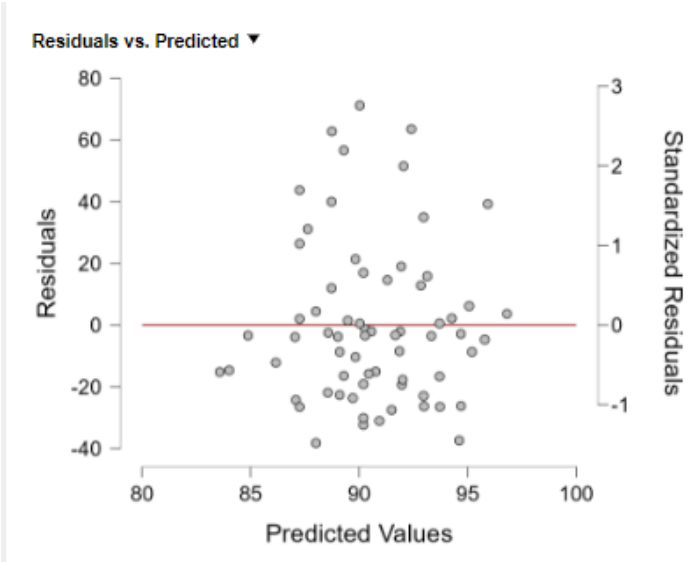
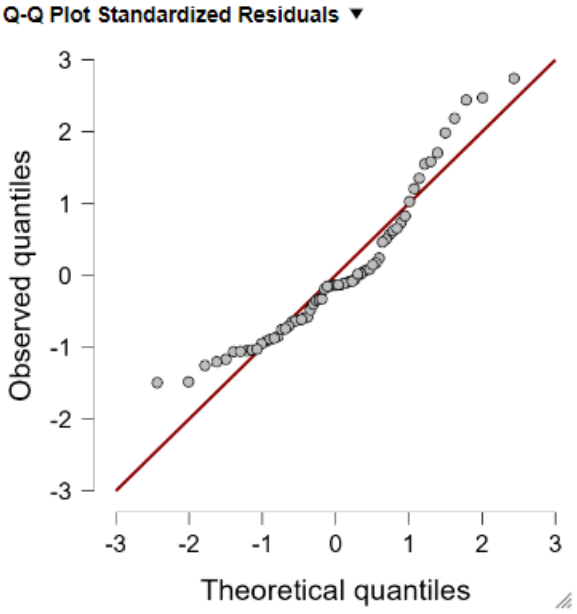


Figure B3

Q-Q plot of standardized residuals examining normality of residuals between the main variables.



Appendix C

Assumption Check Exploratory Analysis

Figure C1

Scatterplots examining linearity between job insecurity and workload with negative emotions.

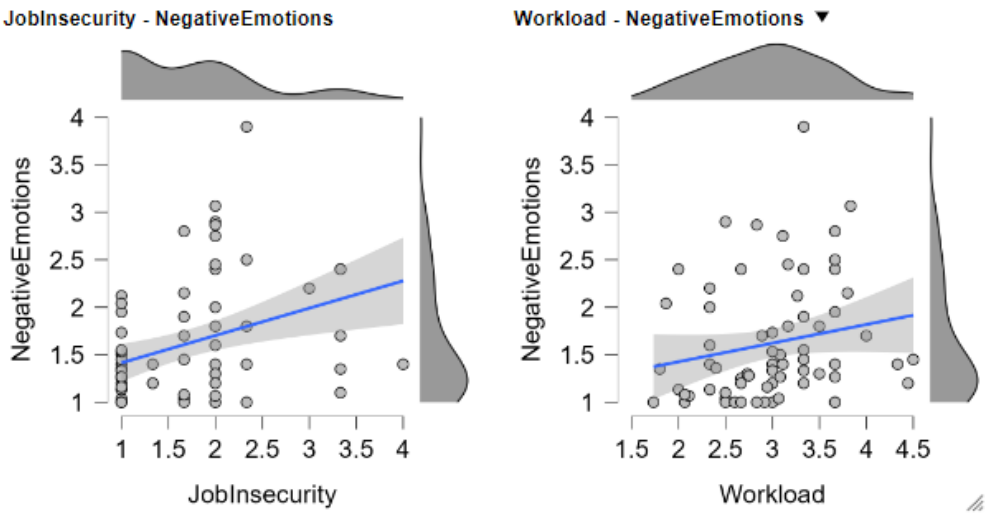


Figure C2

Scatterplots examining linearity between job insecurity and workload with fatigue.

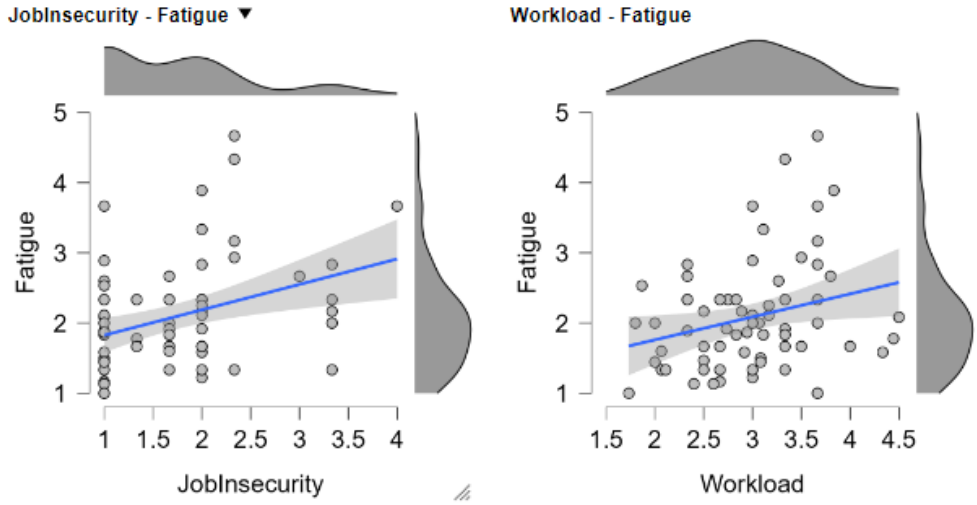


Figure C3

Residual-versus-predicted-values-plot examining homoscedasticity for workload and job insecurity with negative emotions (A), and with both predictors for fatigue (B).

(A) Negative Emotions *(B) Fatigue*

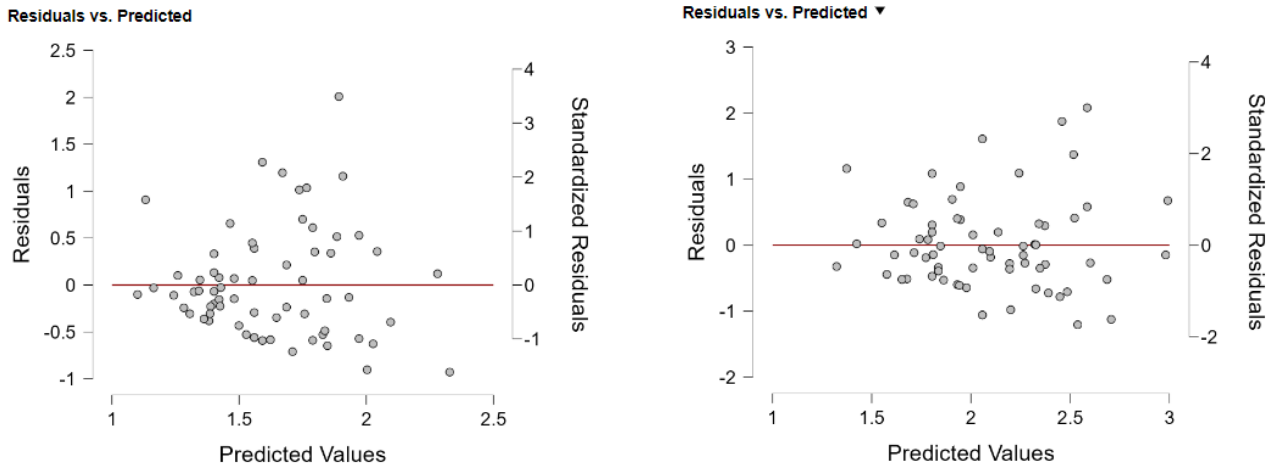


Figure C4

Q-Q plot of standardized residuals examining normality of residuals for workload and job insecurity with negative emotions (A), and with both predictors for fatigue (B).

(A) Negative Emotions *(B) Fatigue*