

**WELL-BEING AND COGNITIVE FAILURES: A SURVEY OF UNIVERSITY STAFF**

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**ABSTRACT**

**Background:** Cognitive functioning is often considered to be an important part of well-being. Research has shown that attention, memory, and action can be assessed by questionnaire. Little is known about the relationship between subjective reports of cognitive failures and emotional well-being (happiness, life satisfaction, positive affect, stress, anxiety, depression, and negative affect). This was investigated in the present study. **Methods:** An online survey was carried out with a sample of one hundred and twenty university staff (mean age: 36.8 years; age range 21-69 years; 76.7% female). They completed the Well-being Process Questionnaire (WPQ) and answered questions about cognitive failures at work and outside work. **Results:** Those with higher negative well-being and lower positive well-being reported more problems with memory, attention, and action both at work and outside work. Positive well-being was predicted by social support, psychological capital, and positive coping. Negative well-being was associated with greater job demands and more frequent use of negative coping. The established predictors of well-being did not predict cognitive failures. Associations between negative well-being outcomes and cognitive failures remained significant when established well-being predictors were covaried. **Conclusion:** High levels of negative well-being are associated with an increased frequency of cognitive failures. Predictors of well-being did not predict cognitive failures when well-being outcomes were included in the analyses.

**KEYWORDS:** Well-being; Well-being Process Questionnaire (WPQ); Cognitive Failures; University staff.

**INTRODUCTION**

Cognitive failures, problems of attention, action and memory can be measured by questionnaire.<sup>[1-4]</sup> Our research on factors that increase or decrease cognitive failures has a long history and is briefly summarised below. The first study<sup>[5]</sup> examined reported cognitive failures in groups of people who lived in areas of low and high aircraft noise. The results showed that higher aircraft noise exposure was associated with greater reporting of cognitive failures. Another study<sup>[6]</sup> examined associations between symptom reporting and cognitive failures. There were significant correlations between cognitive failure scores and anxiety, depression, somatic symptoms, neuroticism, obsessional symptoms and low alertness. Other research has investigated cognitive failures in the workplace.<sup>[7-10]</sup> Cognitive failures were associated with an increased risk of injuries and accidents at work. They were also associated with the mental health of the workers and whether they were taking psychotropic medication. Finally, research has investigated factors that might reduce the frequency of cognitive failures. Frequent consumption of caffeine was associated with fewer cognitive failures, and this was true in workers,<sup>[11]</sup> non-workers,<sup>[12]</sup> and the elderly.<sup>[13,14]</sup> The aim of the present research was to examine associations between positive well-being (e.g.,

happiness, life satisfaction and positive affect), negative well-being (e.g., stress, anxiety and depression) and cognitive failures. A second aim was to determine whether any associations remained significant when established predictors of well-being were covaried.

The well-being process approach<sup>[15,16]</sup> which is based on the Demand-Resources-Individual-Effects (DRIVE) model.<sup>[17-20]</sup> was used in the present study. The Well-being Process Questionnaire (WPQ) was used to measure positive and negative well-being outcomes and their predictors. This questionnaire has been used in many studies involving both specific industry sectors and the general working population.<sup>[21-48]</sup> These previous studies have established reliable well-being predictors, and the present analyses examined whether these findings were replicated in the present study. Cognitive failures were measured by two questions asking about cognitive failures at and outside work. These single items are highly correlated with longer cognitive failure scales and have been used in previous research on risk factors for cognitive failure.<sup>[7-13]</sup>

**MATERIALS AND METHODS**

The present research was approved by the Ethics Committee, School of Psychology, Cardiff University.

The online survey was conducted with the informed consent of the participants. Informed consent was obtained before the survey.

### Participants

One hundred and twenty members of Cardiff University staff completed the survey. The staff were from several sectors of the university, including teaching, accommodation, finance and security. They had a mean age of 36.8 years (age range 21-69 years) and 23.3% were male. The majority were educated to degree level (73%). Most worked fixed hours (79%) and were full-time employees (81%). The majority were married or living with a partner (63%).

### The Survey

The first part of the survey consisted of the WPQ. The following WPQ variables were included in the analyses:

- Negative well-being (Stress, negative affect, anxiety and depression).
- Positive well-being (Happiness, life satisfaction, positive affect).
- Job demands.
- Job control.
- Psychological capital (Optimism, self-esteem, self-efficacy).
- Social support.
- Negative coping (Wishful thinking, self-blame).
- Positive coping (Problem-solving, seeking support).

The cognitive failure questions were:

How frequently do you find that you have problems with memory (e.g. forgetting where you put things), attention (e.g. failures of concentration), or action (e.g. doing the wrong thing)?

a) at work

Not at all      Rarely      Occasionally  
<sub>0</sub>      <sub>1</sub>      <sub>2</sub>

Quite Frequently      Very Frequently  
<sub>3</sub>      <sub>4</sub>

b) outside of work

Not at all      Rarely      Occasionally  
<sub>0</sub>      <sub>1</sub>      <sub>2</sub>

Quite Frequently      Very Frequently  
<sub>3</sub>      <sub>4</sub>

### Analysis

The correlations between the positive and negative well-being and the cognitive failure scores were computed. Regressions then investigated whether the predictor variables were significantly associated with the WPQ outcomes. Separate analyses were performed for each outcome. Finally, regressions examined whether any associations between the well-being outcomes and the cognitive failure scores remained significant when the established predictors were covaried.

## RESULTS

### Correlations:

Higher positive well-being was associated with fewer cognitive failures both at work and outside work. Negative well-being showed the opposite profile of effects. These results are shown in Table 1.

**Table 1: Correlations between well-being Outcomes and Cognitive failures.**

	Positive well-being	Negative well-being
Cognitive failures at work	-0.27 p<0.005	0.37 p<0.001
Cognitive failures outside work	-0.20 p<0.05	0.33 p<0.001

### Regressions with established well-being predictors

Higher positive well-being was significantly associated with greater social support, more positive coping and higher psychological capital scores. These results confirm previous findings. Higher negative well-being was significantly associated with higher job demands and greater use of negative coping. This again confirms previous results.

### Regressions with established Predictors and Well-being outcomes as independent variables

In the regression with cognitive failures at work as the dependent variable, negative well-being was a significant predictor (standardised beta = 0.29; t = 2.28 p <0.05). None of the established predictors of well-being were significantly associated with cognitive failures at work. In the regression with cognitive failures outside work as the dependent variable, negative well-being was a significant predictor (standardised beta = 0.29; t = 2.30 p <0.05). None of the established predictors of well-being were significantly associated with cognitive failures at work.

## DISCUSSION

There has been extensive research on factors related to cognitive failures, and it has been shown that some features of the environment and the individual increase the likelihood of cognitive failures, whereas others reduce the frequency of cognitive failure occurrence. The results from the present study show that positive well-being was related to fewer cognitive failures at work and outside work, whereas negative well-being was associated with more cognitive failures in both contexts. Positive and negative well-being were associated with established well-being predictors, which gives more confidence in the more novel results reported here. The established predictors of well-being did not predict cognitive failure. When the established predictors of well-being and the well-being outcomes were included in the same regression model, only negative well-being predicted the level of cognitive failure.

The present study has several limitations which must be addressed in future research. First, it was a cross-

sectional study, and future research should use longitudinal designs, preferably with interventions, to obtain a better indication of causality. Secondly, a specific occupational sample participated in the study, and it is important to determine whether the results generalise to other samples. Cognitive failures include different domains of function, and it is important to investigate specific areas such as attention, memory and response. This should be done with both subjective reports and objective measures.

## CONCLUSION

Cognitive functioning is part of many definitions of well-being. Cognitive domains such as attention, memory and action can be assessed by questionnaire. The relationship between emotional well-being (happiness, life satisfaction, positive affect, stress, anxiety, depression, and negative affect) and subjective reports of cognitive failures was investigated in the present study. An online survey was conducted with a sample of university staff. The survey consisted of the Well-being Process Questionnaire and questions about cognitive failures at work and outside work. Those with higher negative well-being and lower positive well-being reported more cognitive failures both at work and outside work. Positive well-being was predicted by psychological capital, social support, and positive coping, whereas negative well-being was predicted by job demands and negative coping. The established predictors of well-being were not associated with the frequency of cognitive failures. The associations between negative well-being outcomes and cognitive failures were significant when established well-being predictors were included in the regression model. In summary, high levels of negative well-being were associated with an increased frequency of cognitive failures. Predictors of well-being did not predict cognitive failures if the outcome measures were included in the model.

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