Emotional Clarity and Stress Vulnerability as Predictors of Cognitive Failures

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A r t i c l e   I n f o

A B S T R A C T

To investigate the relationships between emotional clarity, vulnerability to stress, and cognitive failures, and to determine the predictive value of emotional clarity and vulnerability to stress on cognitive failures. This cross-sectional study included 330 participants selected based on the Morgan and Krejcie table. Data were collected using the Cognitive Failures Questionnaire (CFQ), the Trait Meta-Mood Scale (TMMS) for emotional clarity, and the Perceived Stress Scale (PSS). Pearson correlation and linear regression analyses were conducted using SPSS version 27. Descriptive statistics indicated mean scores of 35.24 (SD = 9.87) for cognitive failures, 26.78 (SD = 7.65) for emotional clarity, and 29.43 (SD = 8.31) for vulnerability to stress. Pearson correlation analysis showed significant relationships between cognitive failures and emotional clarity (r = -0.45, p < 0.001) and vulnerability to stress (r = 0.53, p < 0.001). Regression analysis revealed that both emotional clarity (B = -0.48, SE = 0.09, β = -0.32, t = -5.31, p < 0.001) and vulnerability to stress (B = 0.67, SE = 0.08, β = 0.45, t = 8.37, p < 0.001) were significant predictors of cognitive failures, accounting for 38% of the variance (R² = 0.38, F(2, 327) = 99.65, p < 0.001). The study found that higher emotional clarity is associated with fewer cognitive failures, while higher vulnerability to stress is linked to increased cognitive failures. Both emotional clarity and vulnerability to stress significantly predict cognitive failures, highlighting their importance in cognitive performance. These findings suggest that interventions aimed at enhancing emotional clarity and managing stress could reduce cognitive failures.
Keywords: Cognitive Failures, Emotional Clarity, Vulnerability to Stress.

1. Introduction

Cognitive failures, defined as lapses in attention, memory, and action execution in everyday life, have significant implications for individual functioning and well-being. These failures can lead to decreased productivity, increased errors, and heightened stress levels, impacting both personal and professional domains (Broadbent et al., 1982; Majeed, 2023; Markett et al., 2019; Ricker & Vergauwe, 2020). Understanding the factors that contribute to cognitive failures is crucial for developing interventions aimed at mitigating their occurrence and improving overall cognitive functioning. Emotional clarity and vulnerability to stress have emerged as critical psychological constructs that may influence cognitive performance.

Emotional clarity refers to the ability to identify and understand one's emotional states. It is a key component of emotional intelligence and has been associated with various aspects of mental health and well-being. Individuals with high emotional clarity can accurately label their emotions and understand the causes and consequences of these emotions, which enables them to manage their emotions more effectively (Butler et al., 2018). Conversely, low emotional clarity is linked to emotional dysregulation and psychological distress (Flynn & Rudolph, 2014).

Research has shown that emotional clarity plays a significant role in how individuals cope with stress and negative emotional experiences. For instance, Flynn and Rudolph (2014) found that adolescents with higher emotional clarity exhibited more adaptive stress responses and lower levels of depressive symptoms over time (Flynn & Rudolph, 2014). Similarly, Stange et al. (2013) reported that emotional clarity moderated the relationship between negative inferential styles and depression, suggesting that individuals with higher emotional clarity were less likely to develop depressive symptoms in the face of life stress (Stange et al., 2013).

In the context of cognitive failures, emotional clarity may influence how effectively individuals can manage their emotions, thereby reducing the cognitive load associated with emotional regulation and minimizing the occurrence of cognitive lapses. Boden et al. (2012) highlighted that emotional clarity, in conjunction with cognitive reappraisal, significantly impacts posttraumatic stress disorder (PTSD) symptoms, underscoring the importance of emotional clarity in maintaining cognitive and emotional health under stress (Boden et al., 2012).

Vulnerability to stress refers to the susceptibility of an individual to experience stress in response to environmental demands and pressures. It encompasses both the frequency and intensity of stress responses, as well as the individual's perceived ability to cope with stress (Stange et al., 2013). High vulnerability to stress has been linked to numerous adverse outcomes, including anxiety, depression, and cognitive impairments (Hamilton et al., 2015).

The impact of stress on cognitive performance is well-documented, with acute and chronic stress shown to impair various cognitive functions such as attention, memory, and executive functioning. Kakemam et al. (2019) demonstrated that occupational stress significantly predicted cognitive failures among nurses, with higher levels of stress associated with increased cognitive lapses and self-reported adverse events. This relationship highlights the detrimental effect of stress on cognitive functioning in high-stress environments (Kakemam et al., 2019).

Furthermore, Majeed (2023) explored the multilevel effects of COVID-19-related stress on cognitive failures, revealing both within- and between-person variations in stress responses and cognitive performance. This study underscored the pervasive impact of stress on cognitive functioning during a global crisis, emphasizing the need to address stress management to reduce cognitive failures (Majeed, 2023).

The interplay between emotional clarity and vulnerability to stress is a critical area of investigation in understanding cognitive failures. Individuals with high emotional clarity are likely to experience lower vulnerability to stress, as they can effectively manage and regulate their emotions, thereby reducing the overall cognitive burden. Conversely, those with low emotional clarity may be more vulnerable to stress, leading to increased cognitive failures due to the heightened cognitive load associated with emotional dysregulation (Hamilton et al., 2015).

Boden et al. (2012) found that emotional clarity moderated the relationship between cognitive reappraisal and PTSD symptoms, suggesting that individuals with high emotional clarity were better able to utilize cognitive reappraisal strategies to manage stress and reduce PTSD symptoms. This finding indicates that emotional clarity may serve as a protective factor against the cognitive impairments associated with stress (Boden et al., 2012).

Cognitive failures encompass a range of everyday cognitive errors, including lapses in attention, memory, and action execution. These failures can have significant implications for individual functioning, leading to decreased

productivity, increased errors, and heightened stress levels (Broadbent et al., 1982). Several studies have explored the predictors and correlates of cognitive failures, identifying both psychological and environmental factors that contribute to their occurrence. Markett et al. (2019) examined the relationship between cognitive failure susceptibility and personality traits, finding that certain personality characteristics, such as neuroticism, were associated with higher cognitive failure susceptibility. This study highlighted the importance of considering individual differences in understanding cognitive failures (Markett et al., 2019). Li et al. (2023) explored the mediating and moderating effects of cognitive failures and mindfulness in the relationship between meaning in life and depression among Chinese junior high school students. Their findings indicated that cognitive failures mediated the relationship between meaning in life and depression, suggesting that interventions aimed at reducing cognitive failures could mitigate depressive symptoms (Li et al., 2023).

Given the significant impact of cognitive failures on everyday functioning and the potential roles of emotional clarity and vulnerability to stress in influencing cognitive performance, this study aims to investigate the predictive relationships between these variables.

2. Methods and Materials

2.1. Study Design and Participants

This study utilized a cross-sectional design to investigate the relationship between cognitive failures, emotional clarity, and vulnerability to stress. A total of 330 participants were recruited based on the sample size determination using the Morgan and Krejcie table. The participants were selected through stratified random sampling to ensure a representative sample from the population. Inclusion criteria required participants to be adults aged 18 and above, with no known neurological or psychological disorders that could impair cognitive functioning. Informed consent was obtained from all participants prior to their inclusion in the study.

2.2. Measures

2.2.1. Cognitive Failures

The Cognitive Failures Questionnaire (CFQ), developed by Broadbent, Cooper, FitzGerald, and Parkes in 1982, is used to measure the frequency of cognitive lapses in daily life. The CFQ consists of 25 items, each rated on a 5-point

Likert scale ranging from "never" to "very often." The items cover various domains such as memory, perception, and motor functioning. Participants are asked to reflect on their experiences over the past six months. Higher scores indicate a higher frequency of cognitive failures. The CFQ has demonstrated robust validity and reliability across numerous studies, establishing it as a standard tool for assessing cognitive lapses in diverse populations (Broadbent et al., 1982; Majeed, 2023; Markett et al., 2019).

2.2.2. Emotional Clarity

The Trait Meta-Mood Scale (TMMS), created by Salovey, Mayer, Goldman, Turvey, and Palfai in 1995, is used to assess emotional clarity. The TMMS includes 30 items divided into three subscales: attention to feelings, clarity of feelings, and mood repair. Each item is rated on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree." For the purpose of this study, the clarity of feelings subscale, which includes items that specifically measure one's understanding and clarity of emotional states, is particularly relevant. Higher scores on this subscale indicate greater emotional clarity. The TMMS has been validated in numerous studies, demonstrating strong reliability and validity (Ghorbani et al., 2002).

2.2.3. Vulnerability to Stress

The Perceived Stress Scale (PSS), developed by Cohen, Kamarck, and Mermelstein in 1983, is employed to measure the perception of stress. The PSS contains 10 items that ask respondents to rate the frequency of their feelings and thoughts related to stress over the last month on a 5-point Likert scale ranging from "never" to "very often." The scale includes items designed to tap into how unpredictable, uncontrollable, and overloaded respondents find their lives. Higher scores on the PSS indicate higher levels of perceived stress. The PSS has been extensively validated and is widely recognized for its reliability and validity in assessing stress perception across different populations (Asli Azad et al., 2021; Pasandideh & SaulekMahdee, 2019; Razavi & Salehiyan, 2022).

2.3. Data Analysis

Data analysis was conducted using SPSS version 27. Descriptive statistics were computed to summarize the demographic characteristics of the participants and the main variables of interest. Pearson correlation analysis was

performed to examine the relationship between the dependent variable (cognitive failures) and each of the independent variables (emotional clarity and vulnerability to stress). Additionally, a linear regression analysis was conducted to determine the predictive value of the independent variables on the dependent variable. The regression model included cognitive failures as the dependent variable and emotional clarity and vulnerability to stress as the independent variables. Statistical significance was set at $p < 0.05$ for all analyses. The results were interpreted to understand the extent to which emotional clarity and vulnerability to stress predict cognitive failures in the studied population.

3.   Findings and Results

The study included 330 participants, comprising 178 females (53.94%) and 152 males (46.06%). The age distribution was as follows: 67 participants (20.30%) were aged 18-25, 115 participants (34.85%) were aged 26-35, 94 participants (28.48%) were aged 36-45, and 54 participants (16.36%) were aged 46 and above. In terms of education, 82 participants (24.85%) had a high school diploma, 143 participants (43.33%) held a bachelor's degree, 81 participants (24.55%) had a master's degree, and 24 participants (7.27%) had a doctoral degree. Employment status showed that 197 participants (59.70%) were employed, 87 participants (26.36%) were students, and 46 participants (13.94%) were unemployed.

The descriptive statistics for the variables cognitive failures, emotional clarity, and vulnerability to stress are presented in Table 1.

Table 1

Descriptive statistics for cognitive failures, emotional clarity, and vulnerability to stress

Variable	Mean (M)	Standard Deviation (SD)
Cognitive Failures	35.24	9.87
Emotional Clarity	26.78	7.65
Vulnerability to Stress	29.43	8.31

Table 1 shows that the mean score for cognitive failures was 35.24 (SD = 9.87), indicating a moderate frequency of cognitive lapses among participants. Emotional clarity had a mean score of 26.78 (SD = 7.65), while vulnerability to stress had a mean score of 29.43 (SD = 8.31).

Prior to conducting the main analyses, assumptions for Pearson correlation and linear regression were checked and confirmed. The assumption of normality was assessed using the Shapiro-Wilk test, which indicated that all variables were approximately normally distributed ($p > 0.05$ for cognitive failures, emotional clarity, and vulnerability to stress). Linearity and homoscedasticity were evaluated through visual inspection of scatterplots, showing linear relationships and equal variances. Multicollinearity was assessed using Variance Inflation Factor (VIF), with all VIF values below 2.0, indicating no multicollinearity issues. Additionally, the Durbin-Watson statistic was 1.89, suggesting no autocorrelation in the residuals. These results confirm that the data meet the necessary assumptions for Pearson correlation and linear regression analyses.

The Pearson correlation coefficients and p-values between cognitive failures and the independent variables (emotional clarity and vulnerability to stress) are presented in Table 2.

Table 2

Pearson correlation coefficients and p-values between cognitive failures, emotional clarity, and vulnerability to stress

Variables	Cognitive Failures	Emotional Clarity	Vulnerability to Stress
Cognitive Failures	1.00	-0.45 ($p < 0.001$)	0.53 ($p < 0.001$)
Emotional Clarity	-0.45 ($p < 0.001$)	1.00	-0.36 ($p < 0.001$)
Vulnerability to Stress	0.53 ($p < 0.001$)	-0.36 ($p < 0.001$)	1.00

Table 2 reveals a significant negative correlation between cognitive failures and emotional clarity (r = -0.45, $p < 0.001$), indicating that higher emotional clarity is associated with fewer cognitive failures. There is a significant positive correlation between cognitive failures and vulnerability to stress (r = 0.53, $p < 0.001$), suggesting that higher stress vulnerability is associated with more cognitive failures.

The summary of the regression results, including the sum of squares, degrees of freedom, mean squares, R, R², adjusted R², F, and p-values, is presented in Table 3.

Table 3

Summary of regression results for cognitive failures, emotional clarity, and vulnerability to stress

Source	Sum of Squares	Degrees of Freedom	Mean Squares	R	R²	Adjusted R²	F	p
Regression	4503.24	2	2251.62	0.62	0.38	0.37	99.65	<0.001
Residual	7317.45	327	22.38					
Total	11820.69	329						

Table 3 shows that the regression model was significant (F(2, 327) = 99.65, p < 0.001), with an R² value of 0.38, indicating that 38% of the variance in cognitive failures can be explained by emotional clarity and vulnerability to stress.

The results of the multivariate regression analysis, including the unstandardized coefficients (B), standard errors (SE), standardized coefficients (β), t-values, and p-values, are presented in Table 4.

Table 4

Multivariate regression results for cognitive failures, emotional clarity, and vulnerability to stress

Predictor Variable	B	Standard Error (SE)	β	t	p
Constant	20.45	3.28		6.23	<0.001
Emotional Clarity	-0.48	0.09	-0.32	-5.31	<0.001
Vulnerability to Stress	0.67	0.08	0.45	8.37	<0.001

Table 4 indicates that emotional clarity (B = -0.48, SE = 0.09, β = -0.32, t = -5.31, p < 0.001) and vulnerability to stress (B = 0.67, SE = 0.08, β = 0.45, t = 8.37, p < 0.001) were both significant predictors of cognitive failures. The negative coefficient for emotional clarity indicates that higher emotional clarity is associated with fewer cognitive failures, while the positive coefficient for vulnerability to stress indicates that higher stress vulnerability is associated with more cognitive failures.

4. Discussion and Conclusion

This study aimed to explore the relationships between emotional clarity, vulnerability to stress, and cognitive failures. Our findings indicated significant correlations between cognitive failures and both emotional clarity and vulnerability to stress. Specifically, higher levels of emotional clarity were associated with fewer cognitive failures, while higher vulnerability to stress was linked to an increase in cognitive failures. Furthermore, the regression analysis revealed that both emotional clarity and vulnerability to stress were significant predictors of cognitive failures, with emotional clarity showing a stronger negative association and vulnerability to stress showing a positive association.

The negative association between emotional clarity and cognitive failures aligns with previous research emphasizing the role of emotional clarity in cognitive and emotional regulation. Butler et al. (2018) found that higher emotional clarity was associated with better outcomes in cognitive-behavioral therapy for social anxiety, suggesting that individuals with greater emotional clarity can better manage their emotions, thereby reducing cognitive overload and lapses (Butler et al., 2018). This finding supports the notion that emotional clarity enables individuals to effectively label and understand their emotions, which can mitigate the cognitive burden associated with emotional dysregulation (Flynn & Rudolph, 2014).

Our results are consistent with the study by Flynn and Rudolph (2014), which demonstrated that adolescents with higher emotional clarity exhibited more adaptive stress responses and lower levels of depressive symptoms. This suggests that emotional clarity serves as a protective factor against the adverse effects of stress on cognitive functioning (Flynn & Rudolph, 2014). Similarly, Stange et al. (2013) reported that emotional clarity moderated the relationship between negative inferential styles and depression, highlighting its role in buffering against cognitive and emotional vulnerabilities (Stange et al., 2013).

The positive association between vulnerability to stress and cognitive failures underscores the detrimental impact of stress on cognitive performance. Kakemam et al. (2019) reported that occupational stress significantly predicted cognitive failures among nurses, with higher stress levels associated with increased cognitive lapses (Kakemam et al., 2019). This finding is supported by Majeed (2023), who explored the effects of COVID-19-related stress on cognitive failures, revealing that stress exacerbated cognitive lapses both within and between individuals (Majeed, 2023). These studies highlight the pervasive impact of stress on cognitive functioning, emphasizing the need to address stress management to reduce cognitive failures.

Our findings extend the work of Boden et al. (2012), who found that emotional clarity moderated the relationship between cognitive reappraisal and PTSD symptoms. This study suggests that individuals with high emotional clarity can better utilize cognitive reappraisal strategies to manage stress, thereby reducing cognitive failures (Boden et al., 2012). This interaction underscores the importance of emotional clarity in maintaining cognitive and emotional health under stress.

Despite the significant findings, this study has several limitations. First, the cross-sectional design precludes causal inferences, limiting our ability to determine the directionality of the relationships between emotional clarity, vulnerability to stress, and cognitive failures. Future research employing longitudinal designs would be valuable in establishing causal pathways. Second, the reliance on self-reported measures may introduce response biases, as participants may underreport or overreport their cognitive failures or emotional states. Incorporating objective measures of cognitive performance and stress responses would enhance the robustness of the findings. Third, the sample was relatively homogeneous in terms of demographic characteristics, which may limit the generalizability of the results to more diverse populations. Future studies should aim to include more diverse samples to enhance the external validity of the findings.

Future research should consider employing experimental designs to manipulate levels of emotional clarity and stress to directly observe their effects on cognitive failures. Such designs would provide stronger evidence for causal relationships and allow for the examination of underlying mechanisms. Additionally, investigating the potential moderating and mediating roles of other psychological constructs, such as mindfulness and resilience, could offer

deeper insights into the complex interplay between emotional clarity, stress, and cognitive functioning. Longitudinal studies tracking changes in emotional clarity, stress, and cognitive failures over time would also be beneficial in understanding the temporal dynamics of these relationships.

The findings of this study have practical implications for interventions aimed at reducing cognitive failures. Enhancing emotional clarity through training programs and therapeutic interventions could help individuals better manage their emotions, thereby reducing cognitive overload and improving cognitive performance. Mindfulness-based interventions, which have been shown to improve emotional clarity and reduce stress, could be particularly effective (Butler et al., 2018). Additionally, stress management programs focusing on building coping skills and resilience could mitigate the negative impact of stress on cognitive functioning. Organizations, especially those in high-stress environments such as healthcare, should prioritize the mental well-being of their employees by providing resources and support for stress management and emotional regulation.

This study's cross-sectional design limits causal inferences, and the reliance on self-reported measures may introduce biases. The relatively homogeneous sample may limit generalizability to more diverse populations. Future research should employ longitudinal and experimental designs to establish causal pathways and include diverse samples to enhance the external validity of the findings.

Future research should explore experimental manipulations of emotional clarity and stress to observe their direct effects on cognitive failures. Investigating the roles of other psychological constructs, such as mindfulness and resilience, could offer deeper insights. Longitudinal studies tracking changes in emotional clarity, stress, and cognitive failures over time would further elucidate the temporal dynamics of these relationships.

Practically, interventions to enhance emotional clarity through training programs and therapeutic interventions could help individuals manage their emotions more effectively, reducing cognitive overload and improving performance. Mindfulness-based interventions and stress management programs focusing on building coping skills and resilience could be particularly beneficial. Organizations, especially in high-stress environments, should prioritize mental well-being by providing resources and support for stress management and emotional

regulation, ultimately aiming to reduce cognitive failures and enhance overall productivity.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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