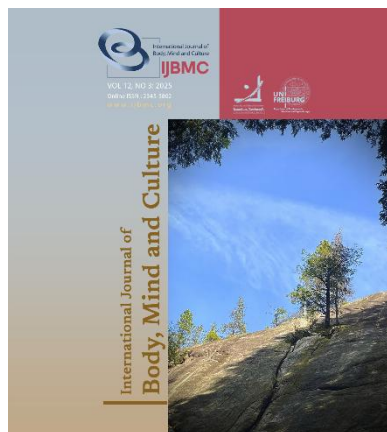


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Psychological Exhaustion and its Relationship to Cognitive Failure among Postgraduate Students

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ABSTRACT

Objective: The Purpose of this study was to explore the relationship between psychological exhaustion and cognitive failure among postgraduate students at the University of Baghdad.

Methods and Materials: A descriptive research design was conducted to explore the relationship between psychological exhaustion and cognitive failure. A sample of 200 postgraduate students consisting of 100 males and 100 females was selected from the university using stratified random sampling. The data were collected using Psychological exhaustion scale developed by Al-Abadsa (2021) and Cognitive Failures Questionnaire by Broadbent et al. (1982). The tools were validated by a group of experts in the field and were found to have a high percentage of agreement (85%). Descriptive, Pearson correlation, and regression analysis were performed to analyze the data.

Findings: The present study revealed that the mean of psychological exhaustion and cognitive failure were 26.75 (SD = 6.42) and 39.58 (SD = 8.37), respectively. A positive correlation was found between psychological exhaustion and cognitive failure ($r = 0.63$, $p < .001$). Regression analysis revealed that psychological exhaustion significantly predicted cognitive failure among postgraduate students at the University of Baghdad ($R^2 = 0.40$, $F = 130.77$, $p < .001$). Moreover, a multivariate regression analysis was performed, and the result revealed that psychological exhaustion significantly predicted cognitive failure ($B = 1.10$, $\beta = 0.63$, $p < .001$).

Conclusion: The present study demonstrated that psychological exhaustion significantly predicted cognitive failure among postgraduate students at the University of Baghdad; thus, there was a positive relationship between the two variables. The results of this study emphasized the need for postgraduate institutions to pay attention to psychological exhaustion as it could have negative consequences on postgraduate students' cognitive performance. The study recommended that institutions should consider developing strategies to help postgraduate students cope with psychological exhaustion.

Keywords: Psychological exhaustion, cognitive failure, postgraduate students, academic stress, mental fatigue.

Introduction

Being mentally drained can feel like more than tiredness. It often shows up in the body, the mind, and in emotions too. In the last few years, people have talked about this a lot, because it affects how well someone functions day to day. It

can also harm how a person feels overall. For postgraduate students, the issue is hard to ignore. School demands are high. Money worries add to the load. On top of that, social stress is also common.(Al-Zubaidi, 2012; Chen et al., 2023).

Feeling worn out in the mind, sometimes called emotional or mental fatigue, can happen when stress goes on for too long. It also shows up when people face too many demands and their mental and emotional energy runs low. Radi (2014) says this is more than just tiredness from the body. He argues it points to a deeper weakening of how well a person can bounce back (Radi, 2014). In 2003, Langle pointed out that burnout associated with psychological exhaustion may harm the holistic perspective of our life. It also makes it extremely challenging to respond to daily demands and stressors in a balanced way. In other words, people who are burned out cannot act as if they are pursuing their goals in life without losing track of their meaning (Langle, 2003). In academic settings, feeling psychologically exhausted can show up in different ways. You might notice that your motivation drops, it becomes harder to think clearly, and your grades or overall performance might start to slip. It's like trying to run on empty—everything feels more challenging and less rewarding (Al-Sharafi, 2013).

Psychological exhaustion can be costly for the workplace, not only for the individuals who experience it. According to the study conducted by Chahal et al. (2022), the symptoms of this condition include a decreased emotional connection to the work area, resulting in negative productivity changes on the micro-level for the employees and the workplace in general. Thus, it is crucial for leaders to prevent workers' psychological exhaustion to maintain a healthy workplace culture (Chahal et al., 2022). Many students experience similar challenges when they're chronically exhausted. This fatigue often causes them to lose interest in their schoolwork and struggle with the mental processes that are essential for learning and performing well in their studies (Budini et al., 2022).

Cognitive failure is the term, which refers to a set of difficulties people experience while performing specific cognitive activities. It occurs when an individual has psychological tension or overload. In 1982, Broadbent and his colleagues created the questionnaire, which helps to identify cognitive failures called Cognitive Failures Questionnaire (CFQ). The tool describes problems people may encounter due to psychological stressors such as a loss

of control over usual activities and inability to perform everyday tasks and recall recent events (Broadbent et al., 1982). Recent psychological and social research has demonstrated that certain types of cognitive function failures, which all humans experience on occasion, have some rather interesting implications in everyday life. For example, students who experience such shortcomings are more likely to struggle with their studies. In addition, a person who frequently loses track of things and forgets what they were supposed to do, is more likely to experience stress in terms of being able to fulfill their duties and obligations on time. Truly, these studies display how our cognitive abilities can sometimes fail us and what repercussions are involved (Daniel & Jessica, 2005).

When we talk about cognitive failures, they often stem from issues with our ability to focus and remember information. This idea is backed by Broadbent's Selective Filter Theory, which suggests that our brains have a filter to help us pay attention to what's important and keep out distractions. When this filter gets disrupted, it can lead to those moments when we forget something important or get easily sidetracked (Al-Kaabi, 2016). Cowan (1988) dives deeper into how our memory and attention have their limits. He explains that cognitive failures may happen due to trying to deal with too many demands at the same time while stressing the significance of understanding how our cognitive system is overloaded (Cowan, 1988). As a postgraduate student, one can face challenges associated with constant fatigue resulting from the mentioned academic burden, which may negatively affect their academic performance and overall well-being due to the loss of motivation and focus on the subject (Al-Mullaji, 2008).

Postgraduate students represent a unique group of individuals in psychological research because they face a number of unique challenges in their lives. They are highly stressed by their studies, have to deal with financial difficulties and the expectations of their family and peers, and experience multiple social problems, which results in their overall dissatisfaction with their life and severe stress levels. Therefore, it is important to analyze the causes of

these issues in order to find possible solutions (Abdul Hamid, 2012).

There has been much research on the topic of cognitive workload and its influence on human performance. Some of the recent works by Chen et al. (2023), Costa et al. (2022) demonstrate how mental fatigue affects the level of an individual's physical capabilities and technical skills in sports. This data can be used to determine the interrelation between the human's mental state and his or her physical performance (Chen et al., 2023; Costa et al., 2022). These findings are important for academic environments, where the mental challenges can often result in lower performance and increased feelings of burnout.

Jacquet et al. (2024) note that the effects of fatigue on higher-level cognitive processes can have lasting effects on motor control. By analogy, then, the same psychological difficulties could have an impact on intellectual performance (Jacquet, 2024). For postgraduate students, such issues could arise when dealing with challenging information, sustaining concentration, and making effective judgments. Accordingly, students who suffer from such a condition are more likely to experience academic difficulties, which could be demoralizing (Salihu, 2023; Salihu & Jaberzadeh, 2022; Salihu et al., 2023).

The relationship between the feeling of mental fatigue and the occurrence of cognitive lapses can be explained by the amount of mental resources. To put it more precisely, when an individual becomes mentally fatigued, the distribution of their mental resources can get disrupted (González-Víllora et al., 2022). As a result, they may start experiencing lapses, slips of the mind, or even some minor mistakes. Simply stated, when people get tired, their ability to organize and maintain certain mental processes deteriorates, which leads to the abovementioned consequences (Yang et al., 2020).

Salihu et al. (2023) uncover brain mechanisms that explain what happens in the central nervous system during mental fatigue. In their study, they discuss how the fatigue affects the communication between the brain and the body resulting in difficulty in motor control and reduced cognitive performance overall. This implies that there are

complex processes taking place within the human organ which have a significant impact on the way people behave and function (Salihu et al., 2023).

Research on psychological exhaustion and cognitive failure has been growing steadily, but it has been concentrated mainly on specific professional categories and undergraduate students. Thus, research on postgraduate students is not only underrepresented but severely lacking. This study aims to contribute to addressing this issue by attempting to find a link between psychological exhaustion and cognitive failure among postgraduate students at the University of Baghdad. The article will highlight key characteristics of this category of students, thus helping to understand the specifics of their further development.

Methods and Materials

Study Design and Participants

The current study employed a descriptive research design to explore and elucidate the phenomenon of psychological exhaustion in conjunction with cognitive failure among postgraduate students at the University of Baghdad in the academic year 2022-2023. The research population comprised a total of 11,872 postgraduate students, including 5,302 male students and 6,570 female students. From this population, a stratified random sampling method was used to select a representative sample of 200 students. The sample was balanced in terms of gender, consisting of 100 male and 100 female participants. This approach ensured that the study adequately represented the diverse demographic and academic characteristics of the target population.

Data Collection Tools

The study utilized two main instruments for data collection, including a psychological exhaustion scale and a cognitive failure questionnaire.

The psychological exhaustion scale was adapted from Al-Abadsa's (2021) validated tool that was identified as an appropriate measure for the current sample after an extensive literature search. The scale comprised 13 items developed to assess the level of psychological exhaustion

among the participants. The response options were rated on a three-point Likert scale ranging from always (3) to never (1).

The cognitive failure questionnaire was constructed using items adapted from those used in previous studies (see Appendix B). The questionnaire was designed to assess how often students experienced difficulties with memory lapses, inattention, and decision-making in everyday activities. The cognitive failure questionnaire was similarly structured to the exhaustion scale, as it also used a Likert-type response format to indicate the severity of each cognitive failure experienced.

Both instruments were subjected to a content validation process. The tools were evaluated by a panel of 10 academic experts from the College of Humanities and Education at the University of Baghdad and the College of Arts at Al-Mustansiriya University. The panel was asked to evaluate the items in terms of face and content validity. Their recommendations were considered in making minor adjustments to meet the requirements for analyzing the target sample. The experts revealed 85% agreement on all items, indicating that the scales were adequate to capture the intended meaning and measure the variables of interest.

Table 1

Descriptive Statistics

Variable	Mean	Standard Deviation
Psychological Exhaustion	26.75	6.42
Cognitive Failure	39.58	8.37

Psychological exhaustion had a mean score of 26.75 (SD = 6.42), which can be classified as a moderate level of exhaustion, while cognitive failure had a higher mean score of 39.58 (SD = 8.37), which implies that students experience cognitive failure more frequently than psychological exhaustion.

Table 2

Correlation Results

Variables	Psychological Exhaustion	Cognitive Failure
Psychological Exhaustion	1.00	
Cognitive Failure	0.63***	1.00

Data analysis

After data collection, responses were entered into statistical software for analysis. Descriptive statistics, including mean scores and standard deviations, were computed to summarize the levels of psychological exhaustion and cognitive failure among the participants. To explore the relationship between psychological exhaustion and cognitive failure, Pearson's correlation coefficient was employed, providing insight into the strength and direction of the relationship between these variables. Additionally, inferential statistical methods such as t-tests were used to examine gender differences in both psychological exhaustion and cognitive failure. The analysis ensured robust conclusions by verifying assumptions of normality and homogeneity of variance where applicable.

Findings and Results

Table 1 presents the mean and standard deviation for the variables of psychological exhaustion and cognitive failure. These descriptive statistics provide an overview of the central tendency and variability of the measures used in this study.

Table 2 below presents Pearson's correlation coefficients and p-values for psychological exhaustion and cognitive failure. The article analyzed the relationship between the two variables.

*** $p < .001$

A significant positive correlation was found between psychological exhaustion and cognitive failure ($r = 0.63$, $p < .001$), indicating that higher levels of psychological exhaustion are associated with increased cognitive failure among postgraduate students.

Table 3

Summary of Regression Results

Source	Sum of Squares	df	Mean Squares	R	R ²	R ² adj	F	p
Regression	1125.78	1	1125.78	0.63	0.40	0.39	130.77	<.001
Residual	1687.94	198	8.53					
Total	2813.72	199						

The regression analysis showed that psychological exhaustion significantly predicts cognitive failure, $F(1, 198) = 130.77$, $p < .001$, accounting for 40% of the variance in cognitive failure ($R^2 = 0.40$, $R^2_{adj} = 0.39$). This finding underscores the substantial influence of psychological exhaustion on cognitive functioning.

Table 4

Results of Multivariate Regression

Predictor	B	Standard Error	β	t	p
Constant	10.23	1.87		5.47	<.001
Psychological Exhaustion	1.10	0.10	0.63	11.43	<.001

The results indicate that psychological exhaustion is a significant predictor of cognitive failure ($B = 1.10$, $SE = 0.10$, $\beta = 0.63$, $t = 11.43$, $p < .001$). For every unit increase in psychological exhaustion, cognitive failure increases by 1.10 units, further highlighting the strong relationship between these variables.

Discussion and Conclusion

The current study aimed to investigate the relationship between psychological exhaustion and cognitive failure. The current results demonstrated patterns that were consistent with previous studies while also providing some additional insights.

Table 3 summarizes the results of the regression analysis, which assessed the predictive relationship between psychological exhaustion and cognitive failure.

Table 4 provides the coefficients from the multivariate regression analysis, including unstandardized coefficients (B), standard errors, standardized coefficients (β), t-values, and p-values.

The descriptive statistics showed that postgraduate students feel moderately exhausted psychologically ($M = 26.75$, $SD = 6.42\%$) and have a high extent of cognitive failure ($M = 39.58\%$, $SD = 8.37\%$). The high degree of fatigue experienced by students corresponds with Al-Zubaidi's (2012) view that university students often face psychological exhaustion as a result of a highly strenuous learning setting. Cognitive failures, which entail forgetting, inattention, and poor judgment were also frequent, consistent with Broadbent et al.'s (1982) conclusion that external stress factors increase the likelihood that individuals would make cognitive mistakes (Broadbent et al., 1982).

The correlation analysis revealed a positive and significant association between psychological exhaustion and cognitive failure ($r = 0.63$, $p < .001$). This finding is

consistent with previous studies (Chahal et al., 2022). González-Víllora et al. (2022) reached similar conclusions regarding the detrimental effects of psychological fatigue on attention and retention, both of which play an important role in cognitive function (González-Víllora et al., 2022). The study also supports the notion of the interconnection between the discussed phenomena, as proven by the load–performance relationship (Salihu, 2023).

The results of the multivariate regression analysis revealed that psychological exhaustion significantly predicts cognitive failure scores ($B = 1.10$, $\beta = 0.63$; $p < .001$). This implies that a unit increase in psychological exhaustion is associated with the proportional increase in cognitive failure. The findings of this study align with those of Jacquet et al. (2021), who established the influence of mental fatigue on motor and cognitive control. These findings prove how psychological exhaustion can predict an individual's daily functioning. Therefore, the study can benefit such populations as postgraduate students (Jacquet et al., 2021; Costa et al., 2022; Chen et al., 2023).

Budini et al. (2022) explored how mental fatigue affects dexterity and steadiness, finding no significant physical changes but notable cognitive disruptions (Budini et al., 2022; Salihu & Jaberzadeh, 2022). Moreover, it is evident that this study adds on to the work undertaken by Al-Mullaji (2008) on the cognitive constraints of university students, as it shows that there are psychological factors which contribute towards these limits, namely exhaustion, is a big contributor to cognitive constraints (Al-Mullaji, 2008). The significant correlations and regressions found further this hypothesis.

The strong predictive relationship between psychological exhaustion and cognitive failure has critical implications for understanding the academic and psychological challenges faced by postgraduate students. These facts make it clear that reducing psychological exhaustion can reduce the occurrence of other cognitive failures and, thus, improve the students' performance and overall well-being. The study has shown that it is essential to increase the efficiency of one's cognitive system while being in a state of distress. While this study has

many strengths, there are also a number of weaknesses that should be acknowledged. First, the study relied on self-reported measures of psychological exhaustion and cognitive failure, which are certainly prone to response biases such as desirability or recall bias. Even though there is evidence to suggest that such measures are generally reliable, it would be beneficial in future studies to employ more objective measures. Second, the study was cross-sectional in design, which means that one cannot infer causal relationships between the variables of interest. Future studies should aim to be longitudinal in design. Finally, the study only included postgraduate students from the University of Baghdad, which is not necessarily representative of the larger society.

Therefore, future studies should focus on the relationship between psychological exhaustion and cognitive failure in the long run, which may help determine the temporal dynamics of these variables. The mediators and moderators of the relationship between psychological exhaustion and cognitive failure should also be analyzed. For instance, researchers may consider examining coping strategies, academic and professional demands, or social support. In addition, it is necessary to expand the sample pool for the study. The sample could be comprised of diverse groups of individuals, such as students or workers. Finally, future researchers should go deeper into detail and use different methodologies, such as EEG or fMRI, to understand the nature of psychological exhaustion and cognitive failure on a neurophysiological level.

Based on the research results, it is recommended that schools invest in addressing the psychological exhaustion of the students. One of the ways of achieving it is organizing various workshops on stress management, mindfulness, and other methods of coping with the fatigue that can occur at the end of the school year. Another suggestion is making academic loads lighter at some point and allowing postgraduates to have a break from studies for a while. In addition, conducting counseling and encouraging peer support groups can also help students cope with their mental and emotional burden. All these measures will ensure the

improvement of the academic performance of the postgraduate students and are worth being taken.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this study.

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