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Abstract

Cognitive failure is associated with memory and concentration problems. Cognitive failures are minor errors in thinking reported by clinical and non-clinical individuals during everyday life. The current study was conducted to explore the relationship of cognitive failure, depression, anxiety and stress. Sample of 167 male and female were selected through convenient sampling technique. Two research instrument were used to measure variables; Cognitive Failures Questionnaire by Broadbent (1982) and Depression Anxiety Stress Scale by Coker et al. (2018). Findings of the study reveal that there is negative relationship between cognitive failure, depression, anxiety and stress among non-clinical individuals. Moreover, it was found that level of cognitive failure during everyday life activities was greater among female as compared to male. In addition, results suggest that psychological burden such as depression, anxiety and stress due to cognitive distortion was significant higher among females than male.

Keywords: Cognitive failure, depression, anxiety, stress

1. Introduction

Cognitive failures describe cognitive errors that occur in a simple task while it is expected that people perform them without any error (Perkins & Corr, 2006). These failures happen in four areas including attention, memory, perceptions, and motor function (Wright & Osborne, 2005). Indeed, this impairment is related to the disability and lapses at the attendance to a task that causes the errors in task execution (Carriere, Cheyne & Smilek, 2008). This failure can be an indicator of the human information processing capacity and can affect task performance. Cognitive failure sometimes can lead to adverse consequences such as accidents at workplaces (Wallace, & Vodanovich, 2003). In particular, we explored whether the occurrence of subjective cognitive failures was associated with anxiety, depression, and anger and whether the associations between cognitive failures and psychological reactions (i.e., anxiety, depression, and anger) were mediated by personal resilience (i.e., the capacity to thrive in the face of adversity, while maintaining relatively normal physical and psychological function over time) and/or by coping style (i.e., the employment of adaptive or maladaptive coping strategies to tolerate, minimize, accept, or ignore stressful situations). The identification of a possible mediating effect of personal resilience or/and coping style on the relationship between cognitive failures and psychological reactions could suggest the type of cognitive and psychological interventions most effective in preventing a cognitive decline after a long period of quarantine/self-isolation. Barrett and Alexander demonstrated (1991) that there is a positive correlation between cognitive failure and accident occurrence. They stated that attention loss, distraction, and mental errors could cause accidents. As well as, resulted by Wallace and Chen (2005), individual cognitive failures are one of the reasons for increasing unsafe behaviors.

Hasanzadeh et al. (2014) also examined the relationship between occupational failure with unsafe behaviors and accidents at drivers. The results showed that cognitive failure is a substantial predictor of unsafe behaviors and accidents. The results of a follow-up study showed that cognitive failure among workers in an army industry enhanced fall injury events and hospitalization. The results of these studies indicated that cognitive failures play an important role in increasing workplace hazardous errors. There are some solutions to reduce cognitive failures. For example, Hsu et al. concluded that the use of workplaces flextime could decrease employees' cognitive failures via increasing their perceived control (Hsu et al., 2021). However, there are various items such as psychosocial items, personal properties, and biological agents that negatively affect cognitive failure (Carrigan & Barkus, 2016). One group of the main agents is psychosocial items such as stress, justice, burnout, conflicts, supports, and demands. These workplace psychosocial items are results of interactions between work organization items and workers' capacities, needs, and experiences (Lu et al., 2014). Those can affect the workers' performance. Stenfors et al. studied the relationship between psychosocial conditions at workplaces and cognitive complaints. The results showed that there are significant relationships between psychosocial conditions and cognitive complaints (Stenfors, 2013).

Day et al. (2012) also concluded that psychological stress could increase cognitive failures and accident occurrences at the workplaces. Another important agent affecting cognitive performance is the individual differences such as personal properties and biological agents (Fabio, 2006). Wallace et al. (2003) showed that boredom proneness increases cognitive failures. Unsworth et al. (2012) concluded that the individual difference in cognitive abilities including working memory, attention control, and retrospective and prospective memory substantially affect the everyday cognitive failures. Accident proneness also is one of the individual differences that may influence cognitive failure. Indeed, the concept of accident proneness is applied to show that some persons experience more accident-related health problems compared to others (Visser, 2007). It is different from injury vulnerability, as another effective agent on cognitive failure. Injury vulnerability elevates the risk of injury or illnesses while the accident proneness increases the probability of the accident occurrence by the people (Singh & Conroy, 2017). However, accident proneness overlaps with some personality traits such as conscientiousness and neuroticism. Elfering et al. (2015) concluded that there is an indirect path from conscientiousness to near-accidents via cognitive failure in action regulation.

In addition, the results of a study performed by Konen and Karbach (2020) showed that cognitive failures were significantly related to the personality domains of conscientiousness and neuroticism.

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Moreover, the results of a systematic review indicated that personality traits of neuroticism, anxiety, and whilst hypomania have a significant effect on cognitive failures. Based on the theoretical model presented by Kecklund and Axelsson (2016), shift work can disturb the sleep process through the circadian rhythm disruption and cause cognitive impairments such as variability in attention and lapses, poorer working and short-term memory, worse executive functioning, and poorer emotion regulation. In addition, it can probably create risky behaviors and psychosocial stress. The finding of these studies declares the statistical and important role of the shift work on cognitive failure and even high-risk behavior (Kecklund & Axelsson, 2016). Previous studies have investigated the effect of cognitive failures on accident proneness. For example, Andrea et al. concluded that distressed individuals tend to commit more cognitive failure, in turn, more occupational accidents (Day, Brasher & Bridger, 2012). Schneeweis et al. observed that education possesses a protective effect on cognitive decline. They stated that a 1-year education would enhance the memory score approximately four decades later by 0.2 (Schneeweis, Skirbekk & Winter-Ebmer, 2014). The results of a study performed by Arshadi et al. (2015) indicated that work-family conflict can significantly affect the overall health, workplace cognitive failure, and marital satisfaction and is an important issue in organizational behavior.

1.1. Objectives of the Study

- To explore the relationship between cognitive failure and psychological burden
- To compare the level of cognitive failure and psychological burden

2. Research Methodology

2.1. Research Design

This quantitative research was completed through correlational research design. Data was collected by designing a survey by using questionnaire. Convenient sampling technique was employed to select the research participants. As a sample 167 male and female were taken. Demographic information was included; gender of the participants (male, female).

2.2. Research Instruments

- Cognitive failures questionnaire (CFQ)
- Depression Anxiety Stress Scale (DASS)

Cognitive failures questionnaire (CFQ): This questionnaire is based on Broadbent's cognitive failure theory (1982). This questionnaire is to measuring cognitive failures in four areas including memory, memory name, distractibility, social blunders. This questionnaire considers the various dimensions of cognition, cognition properties, and the layers in which cognitive failures occur. CFQ consists of 25 questions that cover all four types of failures. In a study conducted by Allahyari et al. (2011), the validity, internal consistency, and repeatability of this tool were determined. The results showed that the content validity index (CVI) and alpha Cronbach's coefficient were 0.7 and 0.96, respectively. The scoring is based on a Likert scale from zero (never) to four (very high) thus, the total score of CFQ can range from zero to 100. A higher score indicates cognitive failure.

Depression Anxiety Stress Scale (DASS): The reliability of DASS-21 showed that it has excellent Cronbach's alpha values of 0.81, 0.89 and 0.78 for the subscales of depressive, anxiety and stress respectively. It was found to have excellent internal consistency, discriminative, concurrent and convergent validities (Coker et al., 2018).

3. Results

Table 1: Correlation among Cognitive Failure, Depression, Anxiety and Stress

	Cronbach's Alpha	1	2	3	4
Cognitive Failure	.851	1	.713***	.692**	.819**
Depression	.769		1	.598**	.623**
Anxiety	.897			1	.769**
Stress	.683				1

Note, Correlation is significant $p < 0.05$.

Table 2: Mean, Standard Deviation, t-value and score of Cognitive Failure between Male and Female

Variable	Gender	N	M	SD	t	Df	p-value
Cognitive Failure	Male	89	19.8320	23.03645	11.953	165	0.000
	Female	78	27.2318	29.93746			

Table 2 shows the significant difference of cognitive failure between male and female.

Table 3: Mean, Standard Deviation, t-value and score of Psychological Problems between Male and Female

Variable	Gender	N	M	SD	t	df	p-value
Psychological Problems	Male	89	9.7321	18.02134	9.921	165	0.000
	Female	78	13.4532	23.67390			

Table 3 shows the significant difference of psychological burden between male and female.

4. Discussion

Cognitive failure is associated with memory and concentration problems. Cognitive failures are minor errors in thinking reported by clinical and non-clinical individuals during everyday life. The current study was aimed at investigating the relationship of cognitive failure, depression, anxiety and stress. Findings of the study reveal that there is negative relationship between cognitive failure, depression, anxiety and stress among non-clinical individuals. Moreover, it was found that level of cognitive failure during everyday

life activities was greater among female as compared to male. In addition, results suggest that psychological burden such as depression, anxiety and stress due to cognitive distortion was significant higher among females than male. In addition, the results of a study performed by Konen and Karbach (2020) showed that cognitive failures were significantly related to the personality domains of conscientiousness and neuroticism. The results showed that there are significant relationships between psychosocial conditions and cognitive complaints (Stenfors, 2013). As well as, resulted by Wallace and Chen (2005), individual cognitive failures are one of the reasons for increasing unsafe behaviors.

5. Conclusion

It was concluded that negative relationship between cognitive failure, depression, anxiety and stress among non-clinical individuals was found. The level of cognitive failure during everyday life activities was greater among female as compared to male. In addition, results suggest that psychological burden such as depression, anxiety and stress due to cognitive distortion was significant higher among females than male.

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