

## The Influence of Cognitive Failures on Decision-Making in Emerging Adults

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### ABSTRACT

The present research articulates the convoluted impact of three cognitive failures—false triggering, forgetting, and distractibility—on decision-making approaches in a representative group of college students in a collegiate cohort. A combination of Pearson's correlation, t-tests, and regression approaches using data from 154 students, we stumbled upon that false triggering is strongly associated with more intuitive decision-making ( $r = .262, p = .001$ ). Subsequently, regression analysis demonstrated that false triggering had an insignificant effect on rational decision-making ( $F(3, 150) = 2.730, p = .046$ ), whereas forgetting and distractibility had no statistically significant predictive influence. This empirical information reflect the varying effects of particular cognitive impairments on decision-making processes. It substantially increases our insight of how discrete cognitive failures influence decision-making, accentuating the importance of tailored cognitive therapies and the progress of research into these multifaceted dynamics within educational settings.

**Keywords:** *Cognitive Failures, Forgetting, Distractibility, false triggering, Rational Decision-Making style, Intuitive Decision-Making style, Gender Differences and Emerging Adults*

The recent years have witnessed an escalating intrigue in unravelling the cognitive foundations that underpin decision-making in the ever evolving and challenging realms of acute medical care. This burgeoning interest has culminated in a rich tapestry of research that meticulously dissects the intricate dance between cognitive failures and decision-making acumen. The designs of these studies, along with their underlying assumptions and the insights they unveil, pave the way for a profound discourse on the multifaceted nature of decision-making processes.

Errors in cognitive processes, often referred to as cognitive failures, entail everyday lapses in memory, perception, and motor functions not due to a deficiency in knowledge or skills but rather due to missteps in executing tasks typically within an individual's capability. The decision-making process, a fundamental cognitive activity, involves selecting from multiple options to make a final choice, potentially leading to action.

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Investigations have illuminated the significant impact of cognitive failures on the decision-making process. Croskerry, Singhal, and Mamede (2013) explore how cognitive and affective biases, stemming from intuitive processes, can adversely affect decision-making, emphasizing the need for bias mitigation. Shadlen and Kiani (2013) contribute to our understanding of the neural underpinnings supporting decision-making accuracy, speed, and confidence, suggesting broader cognitive function principles. The work by Frederick (2005) on the Cognitive Reflection Test (CRT) demonstrates its predictive value regarding individuals' decision-making styles, emphasizing the influence of impulse control on decision preferences.

Additionally, Jarcho, Berkman, and Lieberman (2011) provide evidence that the cognitive mechanisms involved in decision-making activate rapidly at the decision moment, suggesting a quick engagement of biases affecting decisions. Hunt, Krzystofiak, Meindl, and Yousry (1989) find a match between individuals' cognitive styles and their decision-making strategies, further evidencing the cognitive underpinnings in decision-making processes.

These collective findings underscore the critical role of understanding cognitive failures and biases in decision-making. The exploration of cognitive failures within the realm of cognitive psychology not only illuminates the intricacies of human cognition but also lays the groundwork for understanding its profound impact on decision-making, especially among young adults and college students. The academic and social pressures faced by this demographic can exacerbate cognitive failures, subsequently influencing their decision-making processes. Stress and anxiety, common among college students, have been shown to be strongly associated with increased self-reported cognitive failures (Carrigan & Barkus, 2016). These cognitive disruptions, in turn, can lead to poor academic choices, ineffective time management, and increased risk-taking behaviours, highlighting the practical implications of cognitive psychology's theoretical constructs.

For instance, the work of Broadbent, Cooper, Fitzgerald, and Parkes (1982) on the Cognitive Failures Questionnaire (CFQ) not only catalogs these lapses but also prompts a closer examination of their consequences on decision-making efficacy. Cognitive failures can compromise decision-making by impairing an individual's capacity to evaluate options, anticipate outcomes, and select the most appropriate course of action, especially under conditions of stress or cognitive overload (Mahoney, Dalby, & King, 1998).

Moreover, cognitive psychology provides insights into potential interventions and strategies to mitigate the impact of cognitive failures on decision-making. By understanding the cognitive mechanisms underlying these lapses, interventions can be tailored to enhance attention, working memory, and executive function—core areas often implicated in cognitive failures. For example, techniques aimed at reducing stress and improving cognitive control can help individuals better manage their cognitive resources, thereby improving their decision-making capabilities (Wickens, Toplak, & Wiesenhal, 2008).

## **METHODOLOGY**

### *Aim*

The fundamental goal of this inquiry is examine the impact of cognitive failures on the decision-making abilities among emerging adults.

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### *Objectives*

- To explore the impact of cognitive failures on the daily functioning and well-being of emerging adults
- To examine the relationship between cognitive failures and decision-making abilities among young Adults.
- To inspect gender difference between cognitive failures and decision-making abilities among young adults

### *Hypothesis*

#### **Null Hypotheses (H<sub>0</sub>)**

- **H<sub>0a</sub>:** There is no significant correlation between the cognitive failures and decision-making in young adults.
- **H<sub>0b</sub>:** Gender does not significantly influence the relationship between cognitive failures and decision-making in young adults.

#### **Alternative Hypotheses (H<sub>a</sub>)**

- H<sub>a1</sub>: There is a significant positive correlation between cognitive failures and decision-making in young adults.
- H<sub>a2</sub>: Gender significantly moderates the relationship between cognitive failures and decision-making in young adults, with noticeable differences between genders.

### *Variables*

- **Independent Variable:** Cognitive Failures

Cognitive failures are minor slip-ups or errors in everyday cognitive tasks, affecting memory, perception, and motor functions. These include forgetfulness, distraction, misperceptions, and coordination failures that can disrupt daily activities (Rabbitt, et al., 1995). Cognitive failures exemplify the practical manifestation of limitations in cognitive processing capacity and the efficiency of executive function (Könen & Karbach, 2018). For emerging adults, particularly college students, cognitive failures can significantly impact academic performance, social interactions, and daily decision-making. The frequency and severity of these lapses can provide insights into the cognitive demands faced by individuals in this developmental stage and the potential need for strategies to enhance cognitive resilience (Drennan, 2003).

- **Dependent Variable:** Decision-Making Abilities

Decision-making abilities refer to the cognitive processes involved in choosing between alternatives or formulating judgments based on criteria and preferences. These abilities encompass identifying decision-making situations, generating alternatives, evaluating options, making choices, and reflecting on the decision-making process (Liu, Liu, & Liu, 2013). The study of decision-making abilities is grounded in dual-process theories, which delineate between fast, intuitive (System 1) and slow, rational (System 2) decision-making processes. These theories explore how different cognitive systems contribute to decision-making behavior and how biases in these processes can influence decision outcomes (Croskerry, Singhal, & Mamede, 2013). Decision-making abilities are particularly critical for emerging adults, as they navigate complex life decisions regarding education, career, and personal life. Understanding the factors that influence these abilities, including cognitive failures, is crucial for developing interventions aimed at improving decision-making competence in this population (Bennett & Sauv e, 2003).

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### ***Sampling Design***

This research gathered 154 responses through a stratified random sampling method to secure a representative group of college students aged 18-25. The population was segmented into strata by essential demographic characteristics, including age, gender, and education level, from which participants were randomly chosen. This sampling technique boosts the representativeness of the participants, enhancing the generalizability of the results and enabling detailed subgroup analyses. This approach is especially useful for studying potential gender differences in experiences of awe and psychological well-being.

### ***Research Design***

This investigation adopts a quantitative correlational methodology to assess the connection between cognitive lapses and decision-making preferences in college-aged students (18-25 years). The gathering of data utilizes both online and traditional survey methods, applying the Cognitive Failures Questionnaire (CFQ) to evaluate cognitive disruptions and the Decision Style Scale (DSS) to analyze decision-making approaches. By employing a mixed-mode approach for distribution, this study aims to increase the diversity of participants and enrich the dataset. The primary statistical tool employed will be Pearson's correlation, facilitating a thorough exploration of the hypothesized links within this population group.

### ***Tools***

The Cognitive Failures Questionnaire (CFQ), conceived by Broadbent, Cooper, Fitzgerald, and Parkes (1982), serves as a vital tool in evaluating self-reported cognitive lapses in perception, memory, and motor functions. This scale allows for a detailed assessment of the frequency of minor yet impactful errors in everyday tasks, enhancing our understanding of cognitive processes. Broadbent et al. (1982) highlight the CFQ's alignment with other self-reported measures, validating its ability to offer a dependable evaluation of cognitive disruptions. It exhibits robust internal consistency, evidenced by Cronbach's alpha coefficients generally exceeding 0.80, demonstrating its reliability across diverse groups (Wallace, Kass & Stanny, 2002). The inclusion of spouse assessments provides external validity, underscoring the CFQ's applicability beyond individual self-reports. Wagle, Berrios, and Ho (1999) explored its use in various clinical populations, identifying shared factors across groups and affirming its utility in clinical settings. Studies by Bridger, Johnsen, and Brasher (2013) further support the CFQ's psychometric properties, affirming its construct validity and reliability. This extensive validation underscores the CFQ's significance in cognitive and ergonomic research, particularly in studying the impact of cognitive control on daily activities.

The Decision Style Scale (DSS), developed by Hamilton, Shih, & Mohammed (2016), measures rational and intuitive decision-making styles. This scale has been validated with Cronbach's alpha scores ranging from 0.43 to 0.83, indicating variability in reliability across components. The intuitive dimension showed high internal consistency with an alpha of 0.83, while the rational dimension was lower at 0.62 (Raharjanti et al., 2022). Further research by Allwood & Salo (2012) suggests that avoiding decision-making, a sign of poor style integration, correlates with increased indecisiveness and stress, highlighting the importance of a balanced decision-making approach.

### ***Procedure***

#### **Statistical Design**

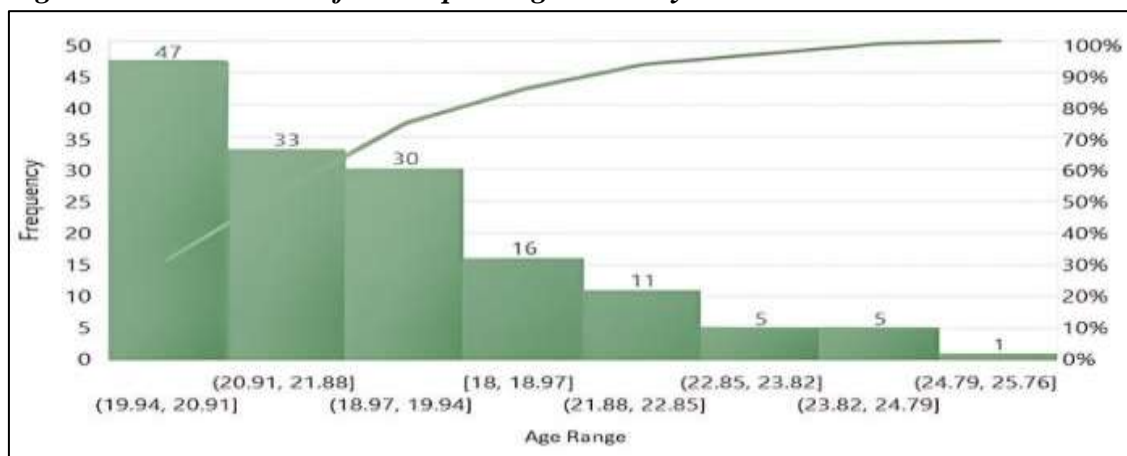
The statistical analysis incorporated descriptive statistics to outline sample characteristics, Pearson's correlation coefficient to explore the relationship between cognitive failures and

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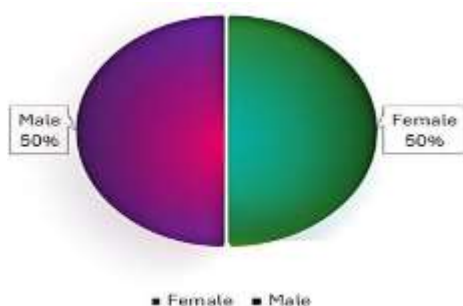
decision-making styles, and independent samples t-tests to examine differences across cognitive failures levels. Results were analyzed to understand the intricate relationships within the data and were prepared for dissemination in peer-reviewed journals and academic conferences. The study's robust statistical design, utilizing parametric tests for efficiency with normally distributed data, provided comprehensive insights into the dynamics between cognitive failures and decision-making abilities in emerging adults.

### RESULT

**Figure 1.1 Distribution of Participant Ages in study Cohort**



**Figure 1.2 Gender Distribution of Study Participants.**



**Table 1.1 Gender Differences in Cognitive Failures and Decision-Making Styles among College Students**

VARIABLES	GENDER	SAMPLE (N)	MEAN $\mu$	STANDARD DEVIATION $(\sigma)$	t-Test (t)	SIG. (2-tailed) $(\alpha)$
Forgetfulness	Female	77	13.05	4.912	1.140	0.256
	Male	77	12.09	5.533	1.140	0.256
Distractibility	Female	77	12.81	4.617	1.264	0.208
	Male	77	11.78	5.421	1.264	0.208
False triggering	Female	77	11.43	5.374	2.578	0.011
	Male	77	9.18	5.440	2.578	0.011
Rational style	Female	77	19.233	3.178	-0.307	0.759
	Male	77	19.402	3.631	-0.307	0.759
Intuitive Style	Female	77	16.376	2.955	2.280	0.024
	Male	77	15.039	4.216	2.280	0.024

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**Table 1.2 Interrelationships Between Cognitive Failures and Decision-Making Styles in College Students**

	Forgetfulness	Distractibility	False Triggering	Rational Style	Intuitive Style
Forgetfulness	X				
Distractibility	0.679**	X			
False Triggering	0.796**	0.621**	X		
Rational Style	0.171*	-0.102	-0.223**	X	
Intuitive Style	0.211**	0.239**	0.262**	0.073	X

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

**Table 1.3 Regression Analysis of Cognitive Failures Predicting Decision-Making Style**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	165.764	3	55.255	4.321	.006 <sup>b</sup>
	Residual	1918.087	150	12.787		
	Total	2083.851	153			
2	Regression	91.704	3	30.568	2.730	.046 <sup>b</sup>
	Residual	1679.705	150	11.198		
	Total	1771.409	153			

a. Dependent Variable: Intuitive style, Rational Style

b. Predictors: (Constant), False triggering, Distractibility, Forgetfulness

## DISCUSSION

This inquiry embarks upon an academic odyssey to decode the intricate interactions between momentary cognitive glitches—specifically, forgetfulness, distractibility, and erroneous initiations—and the binary frameworks of decision-making, encapsulating both rational and intuitive approaches, against the backdrop of nascent adulthood.

From the data in Table 1.1, significant gender differences were observed in cognitive failures related to 'False Triggering' with females showing higher means compared to males ( $p=0.011$ ), indicating a gender-related disparity in this specific cognitive aspect. Jones and Paulhus (2017) found that females are generally more prone to report higher rates of cognitive failures, which may be attributed to greater verbal sensitivity or social desirability biases. However, 'Forgetfulness' and 'Distractibility' showed no significant gender differences. Decision-making styles also exhibited differences; females scored higher on 'Intuitive Style' which was statistically significant ( $p=0.024$ ), suggesting a gender influence on preferring intuitive over rational decision-making processes. The gender difference in intuitive decision-making is corroborated by findings from Zell and Lesick (2018), who noted that women tend to prefer intuitive over rational decision-making processes, potentially due to their higher empathetic tendencies which facilitate rapid, gut-feeling decisions.

Table 1.2 highlights significant correlations between different types of cognitive failures and decision-making styles. 'Forgetfulness' correlates moderately with 'Distractibility' and 'False

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Triggering', suggesting that these cognitive failures may co-occur, supporting the assertions by Kaplan and Berman (2010) that environmental factors can exacerbate cognitive load, pushing individuals towards more intuitive reasoning. The negative correlation between 'Rational Style' and 'False Triggering' (-0.223) indicates that higher rational decision-making is associated with fewer instances of false triggering, which could imply a more deliberate and considered decision-making process mitigates cognitive lapses.

The regression analysis in Table 1.3 further supports the influence of cognitive failures on decision-making styles, where cognitive failures collectively predict a significant variance in 'Intuitive Style' decision-making. The model shows a moderate fit ( $R^2 = 0.046$ ,  $p = 0.046$ ), indicating that while cognitive failures do have an effect, other unmeasured variables might also play substantial roles in shaping decision-making styles. Liang, et al. (2021), who demonstrate that increased cognitive strain can lead to a reliance on heuristic-based decision-making. The regression model's findings support the dual-process theory of decision-making (Evans & Stanovich, 2013), positing that when cognitive capacities are strained, humans default to less demanding, intuitive decision-making processes.

By blending current data with recognized cognitive and decision-making theories, this analysis deepens the conversation on enhancing cognitive resilience and decision-making flexibility. It recommends targeted strategies to bolster cognitive control and decision-making skills among young adults. Additionally, the analysis highlights the need to tailor educational interventions and programs to address gender-specific differences effectively.

### CONCLUSION

This study examines the relationship between cognitive dysfunctions—such as forgetfulness and distractibility—and decision-making styles among emerging adults, focusing on the cognitive shifts influenced by the digital age. Anchored in dual-process theory, the findings reveal that cognitive lapses significantly correlate with a compensatory reliance on intuitive decision-making while maintaining the capacity for rational decision-making. Specifically, forgetfulness and distractibility showed positive correlations with intuitive styles and negligible impact on rational styles, indicating that under cognitive strain, individuals tend to rely more on intuition. The research proposes educational strategies to enhance cognitive resilience and decision-making flexibility, equipping young adults to navigate the complexities of a rapidly evolving world effectively.

### Limitations

This study offers a substantive analysis of cognitive failures and decision-making styles within a college student demographic; however, the scope of its findings is tempered by several limitations. Its cross-sectional design precludes establishing causal relationships or tracking changes over time. The reliance solely on quantitative self-report measures introduces potential recall bias and lacks the depth that qualitative data might offer. The research's gender analysis is limited to a binary framework, omitting broader gender spectrum experiences. Assumptions about uniform digital literacy and access may not accurately represent variability within the study population, which could affect cognitive assessments. The suggested cognitive interventions lack specificity for targeted applications, and the rapid evolution of technology calls for ongoing updates to any proposed digital literacy and intervention strategies. The absence of qualitative data also means the study misses nuanced personal insights and contextual factors crucial for fully understanding cognitive and decision-making dynamics.

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### **Conflict of Interest**

The author(s) declared no conflict of interest.

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