

Research Paper

## Relationship between Cognitive Failures: Forgetfulness, Distractibility, False Triggering; and Absentmindedness among Young Adult Smartphone Users in Mumbai

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### ABSTRACT

This study aimed to investigate the relationship between three types of cognitive failures i.e. Forgetfulness, Distractibility, False-triggering; and Absentmindedness among young adult smartphone users in Mumbai. The sample consisted of 60 participants (Males 28 and Females 32) residing in Mumbai who were active smartphone users for the past 6 months or more under the age range of 18-25 years. The scales used included: The cognitive Failures Questionnaire (CFQ) and the Smartphone Usage Questionnaire – Absentminded version. A Pearson's Product Moment Correlation was carried out to understand the relationship among variables. A significant positive relationship was found between Cognitive Failures and Absentmindedness among smartphone users,  $r = .347$ ,  $p < .01$ . A significant positive relationship was found between Forgetfulness and Absentmindedness among smartphone users,  $r = .527$ ,  $p < .001$ . A significant positive relationship was found between Distractibility and Absentmindedness among smartphone users,  $r = .545$ ,  $p < .001$ . A significant positive relationship was observed between False-triggering and Absentmindedness among smartphone users,  $r = .479$ ,  $p < .001$ . The four hypotheses that were postulated for the study were validated by the results.

**Keywords:** *Absentmindedness, Cognitive Failures, Young Adult Smartphone Users*

**A**bsentmindedness generally refers to being lost in thought and unaware of others. Absentmindedness among smartphone users is a variable currently being studied. This is a phenomenon in which a person uses a smartphone without a specific purpose, without being aware of time or environment, and tends to scroll over the smartphone unknowingly for no specific reason (Marty-Dugas et al., 2018).

Cognitive failures on the other hand are errors reported in cognition. The term "cognitive failures" was introduced by Broadbent et al. (1982) According to him, it refers to a slip that disrupts the intended behaviour (physical or mental) to proceed normally and smoothly. Cognitive impairment reflects global discrepancy in susceptibility to common cognitive controls. Cognitive impairment is a mild reasoning and thinking error reported by clinical and nonclinical individuals in daily life (Carrigan et al., 2016). Rast et al. (2008) indicated

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three types of Cognitive failures from Broadbent's Cognitive Assessment Questionnaire. They defined Forgetfulness as "the tendency to let go of what is actually known or planned, such as names, intentions, appointments, words, etc." The second factor is distraction. This is "distracted by something or easily disturbed. The third and final aspect, false triggers, is called "a series of disruptive processes of cognitive and motor behaviour".

Absentmindedness has been correlated with a lot of cognitive abilities and cognitive failures. Because of absentmindedness, salient but irrelevant stimuli may distract intended thought or action (Manly et al., 1999). Several recent studies have supported that too much time in front of a digital screen has a negative relationship with the performance of children in school (Felsoni & Godai, 2017). Mind wandering and absentmindedness are common cognitive errors that take place due to a lack of attention or distractibility. Marty Dugas et al. found a high positive correlation between absent-minded use of smartphones and Inattention among adolescents (Marty-Dugas et al., 2018).

There has been a lot of research on media usage and Cognitive failures. Frein et al., in 2013 conducted a study on Facebook users which revealed that frequent Facebook users exhibited poor performance on a free recall task (Frein, Jones, & Gerow, 2013). A study that aimed to explore the link between Internet addiction, problematic mobile phone use, and the occurrence of cognitive failures in daily life showed that participants with higher scores on Internet addiction and problematic mobile phone use also had higher scores on Cognitive Failures Questionnaire (Hadlington, 2015).

The current research tries to shed light upon associations between types of Cognitive Failures and Absentmindedness among Young Adult Smartphone Users in Mumbai.

### ***Research Hypotheses***

- There will be a significant positive relationship between Cognitive Failures and Absentmindedness among Smartphone users.
- There will be a significant positive relationship between Forgetfulness and Absentmindedness among Smartphone users.
- There will be a significant positive relationship between Distractibility and Absentmindedness among Smartphone users.
- There will be a significant positive relationship between False-triggering and Absentmindedness among Smartphone users.

## **METHODOLOGY**

### ***Sample***

The sample consisted of 60 participants (Males 28 and Females 32) residing in Mumbai (including Thane and Navi Mumbai), who were active smartphone users for the past 6 months or more under the age range of 18-25 years.

### ***Inclusion Criteria***

- Smartphone users under the age range of 18-25 years who were using touch-screen smartphones for the past 6 months or more.
- Smartphone users with familiarity/ proficiency in the English Language.
- Smartphone users residing in Mumbai (including Thane and Navi Mumbai).

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### Exclusion Criteria

- Smartphone users who experienced any major stressful event in the past 3 months.
- Smartphone users who were clinically diagnosed with any psychological disorders.
- Smartphone users enrolled in any kind of smartphone de-addiction program.

### Instruments:

1. **Smartphone Usage Questionnaire – Absentminded use of Smartphone** (*Jeremy Marty Dugas., 2017*): The scale developed by Jeremy John Marty-Dugas is a 10-item scale that measures absentminded use of smartphones on a 7-pointer Likert scale. The Test-Retest Reliability for the Smartphone Usage Questionnaire – Absentminded version was found to be .93.
2. **Cognitive Failure Questionnaire (CFQ)** (Broadbent et al., 1982): The Cognitive Failure Questionnaire (CFQ) is a 25-on a 5-point likert scale ranging from 0-4. The test-retest reliability was found to be a psychometrically sound measure of Cognitive failures that take place in day-to-day life. The score can range from 0-100. A study by Rast et al. (2008) indicates that the CFQ items load on three different factors. They are as follows: a. Forgetfulness b. Distractibility c. False Triggering.

### Procedure

The current research used an online survey method via Google Forms and the forms were sent through various social media applications like WhatsApp and Instagram using snowball and purposive sampling techniques. A brief rapport was established through a message and inclusion criteria were mentioned. Demographic data was collected and only participants fulfilling the inclusion criteria were able to submit their data. The form took around 7-9 minutes to answer all the questions and lastly, they were debriefed about the study. Since administration was online, email-id of the researcher was mentioned in case of any queries. The data were individually scored, and checking for outliers was done followed by statistical analysis. The data obtained was compared with the proposed hypothesis and it supported the research.

## RESULTS

The Aims of the study were to establish a relationship between Cognitive Failures – Forgetfulness, Distractibility, False Triggering; and Absentmindedness among young adult smartphone users in Mumbai.

*Table No. 1 Sample, Mean, Standard Deviation, and Range for the variables under investigation*

	Age	CF	Absentmindedness	Forgetfulness	Distr	FT
Sample	60	60	60	60	60	60
Mean	21.43	46.78	48.66	14.88	16.28	13.48
Std. Deviation	1.41	3.922	12.61	5.63	5.82	5.98
Range	18-25	11-69	20-70	02-32	04-29	01-32

*Note:* CF is Cognitive Failures, Distr. Is Distractibility, FT is False Triggering.

As shown in Table 1, the sample population for all the variables was 60 participants in the age range of 18-25 years and the mean age of the group was 21.43. The mean or the average score for the Cognitive Failures Scale, which had a range of 11-69, was 46.78 and SD was

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3.92. For the Absentmindedness-Smartphone scale with a range of 20-70, the mean was found to be 48.66 and SD was 12.61. The mean scores for Forgetfulness, Distractibility, and False-Triggering were 14.88, 16.28, and 13.48 respectively. Whereas the Standard Deviation for them was 5.63, 5.82, and 5.98 respectively.

**Table No. 2 Correlational Analysis between the variables for N=60**

Variables	CF	Absentmindedness	Forgetfulness	Distr.	FT
Cognitive Failures					
Absentmindedness	0.347**				
Forgetfulness	0.517***	0.527***			
Distractibility	0.528***	0.545***	0.706***		
False Triggering	0.510***	0.479***	0.822***	0.657***	

*Note:* \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (CF is Cognitive Failures, Distr. is Distractibility and FT is False Triggering)

A Pearson’s product-moment correlation was used to see if there exists a significant correlation between types of Cognitive Failures and Absentmindedness among smartphone users. Table 2 represents the correlational analysis among the variables of the study. As can be seen, all the variables were shown to have a positive linear correlation between them. Cognitive Failures and absentmindedness among smartphone users ( $r = 0.34$ ,  $p < .01$ ) had a significantly low positive relationship. Forgetfulness and Absentmindedness among smartphone users ( $r = 0.53$ ,  $p < .001$ ) were found to have a significantly moderate positive relationship. Distractibility and Absentmindedness ( $r=0.54$ ,  $p < .001$ ) demonstrated a significantly moderate positive correlation. Lastly, False triggering and Absentmindedness among smartphone users ( $r=0.48$ ,  $p<.001$ ) also demonstrated a moderate positive correlation. The data is thus in line with the hypothesis proposed.

## **DISCUSSION**

Smartphones have become an inseparable part of our lives. Young adults are the target consumers of various media applications and gaming markets. Especially new reforms in social media and the addition of apps like Instagram, Snapchat, and YouTube have reported increased use of smartphones among young adults. After Instagram added its latest feature of “Instagram Reels”, YouTube introduced “Short stories” and even shopping apps like Amazon introduced “Mini-TV”; Mindless scrolling is seen increasing among these users. All these new features and apps have led to an increased use of smartphones.

The increased use of smartphones can have various detrimental effects. Though Absentmindedness is itself considered a type of cognitive error, using smartphones absentmindedly can further lead to impairments in cognition and act as a barrier to a healthy lifestyle. Smartphones affect individuals physically, emotionally, socially, and cognitively as well. A lot of research has focused on smartphone addiction and its effects on individuals (Mancinelli et al., 2021). However, not much research has been done on the cognitive side of smartphone usage which is absentminded use of smartphones.

Now it may seem that absentmindedness and cognitive failures are similar, however; the current study focuses on absentmindedness in terms of smartphone usage. The items in the absentmindedness scale were somewhat like, “When I am on my phone, I lose track of time” or “I use my phone without any purpose”. While studying the data, it was observed that

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individuals high on absentmindedness were also high on cognitive failures which involved questions like “Do you find you forget why you went from one part of the house to the other?” or “Do you find you confuse right and left while giving directions?”

Technological advances immensely shape the ways by which we interact with the world. Many recent researchers have tried to focus on how technological advances have led to technological dependence which has in turn made us more absent-minded (Risko & Gilbert, 2016). Overuse of technology is making us too reliant on it and hindering our ability to remember things on our own. If we look back at previous times, as compared to now, we have been facing a lot of technological dependence for remembering things like contact numbers, routes and navigations, and even to-do lists. Sparow et al. in 2011 published a study where they explained how Google has helped us have all information on the tips of our fingers which is causing cognitive failures like forgetfulness and absent-mindedness (Sparow et al., 2011).

Recently, a phenomenon of Digital Dependence has come into space. Some evidence suggests that we live in an era of 'digital dependence' where our brains quickly lose their ability to remember as we increasingly rely on technology to retain data. Furthermore, there is evidence that technology affects individuals' memory and other complex cognitive processes like decision-making, creative thinking, and planning. (Gilbert, 2019). Thus, the current study also adds that smartphones and mindless scrolling can lead to an increase in cognitive failures.

There were three subscales of the Cognitive Failures scale: Forgetfulness, Distractibility, and False triggering.

The correlation between Forgetfulness and absent-minded use of smartphones suggested that smartphone users high on mindless scrolling will also be high on Forgetfulness. As we saw above, absent-minded smartphone use involves scrolling without a specific purpose or losing track of time. Because of the tendency to zone out, while scrolling, they may also be forgetful on a daily basis. They may often experience memory failures as a tip-of-the-tongue phenomenon, where they think they know but are unable to retrieve information (Galotti, 2016).

Further, the correlation between Distractibility and absent-minded use of smartphones suggested that smartphone users high on mindless scrolling will also be high on Distractibility. People who indulge in absent-minded use of smartphones have lower attention spans. They are not mindful of their activities. And inattention or lack of attention causes distractions. Thus, these individuals may face cognitive bias and may easily get distracted in everyday life. Research stated that Young adults high on smartphone addiction also reported low attention span. (Santangelo et al., 2021)

Lastly, the correlation between False Triggering and absent-minded use of smartphones suggested that smartphone users high on mindless scrolling will also be high on False Triggering. False triggering might occur as a result of misinformation, misattribution, or negative emotions. It may also take place because of cognitive interference. Since mindless scrolling over smartphones can cause interference, it may further lead to cognitive failures like false triggers. (Umegami et al., 2013)

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### *Limitations and Future Recommendations*

Since all the factors of the research are not under the control of a researcher, certain limitations are also involved in the current study. The study was self-reported and the data was obtained online. Hence there are chances for biased responses, fake ratings on the scale, and lying so participants can make themselves look better. The test-taking environment cannot be taken into consideration. The sample size was relatively small and restricted to Mumbai participants. Thus, the generalizability of the results was low.

Future investigations can involve differentiation among social media influencers, or young adults who use social media for work purposes. How personality factors play a role in absent-minded scrolling can also be studied in the future. People with different personality traits may have an effect on absentminded scrolling over smartphones which was not controlled in the current study. Individuals might use smartphones for different purposes like gaming, video watching, social media, reading, and a lot more. The type of usage can also be correlated in the future.

### **CONCLUSION**

With the advancements in technology, we are becoming more and more dependent on smartphones. This can have various detrimental effects. The current study was able to establish a significant positive relationship between Types of Cognitive Failures and Absentmindedness among young adult smartphone users.

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### **Conflict of Interest**

The author declared no conflict of interest.

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