European Journal of Clinical Pharmacy
Print ISSN: 2385-409X **Online ISSN:** 3105-0409
Website: https://farmclin.es/

Original Researcher Article

Social Media Usage and Cognitive Flexibility Among Young Adults: A Pilot Study from a Cognitive Load Perspective

Article History:

Received: 24/09/2025
Revised: 06/10/2025
Accepted: 13/11/2025
Published: 17/12/2025

Name of Author:
Rishi Dikshit[1], Prof. U.V. Kiran[2*]

Affiliation: *[1]Research Scholar, Department of Human Development and Family Studies, Babasaheb Bhimrao Ambedkar University,Lucknow, Uttar Pradesh*
[2]Professor, Department of Human Development and family Studies, Babasaheb Bhimrao Ambedkar University, Lucknow,Uttar Pradesh*

Corresponding Author: Prof. U.V. Kiran

Abstracts: The rapid expansion of digital technologies has significantly increased social media engagement among young adults, raising concerns regarding its potential cognitive implications. The present pilot study examined patterns of social media usage and its association with cognitive flexibility among college-going young adults. The study investigated demographic differences in social media usage, variations in cognitive flexibility across demographic variables, and the relationship between social media usage and the two dimensions of cognitive flexibility Alternatives and Control. A quantitative cross-sectional correlational research design was adopted. The sample consisted of 50 college students aged 20–24 years from higher education institutions in Lucknow, Uttar Pradesh, selected using a simple random sampling technique. Social media usage was assessed through self-reported measures, and cognitive flexibility was measured using the Cognitive Flexibility Inventory (CFI). The findings indicated a significant gender difference in social media usage, with males reporting higher usage hours than females. No significant differences were observed across residence, family type, or educational qualification. Cognitive flexibility scores on both CFI Alternatives and CFI Control did not differ significantly across demographic variables. A significant negative correlation was found between social media usage and the CFI–Alternatives dimension, whereas no significant relationship emerged with the CFI–Control dimension. These findings suggest potential associations between higher social media engagement and reduced generative aspects of cognitive flexibility. The study recommends promoting balanced digital habits and conducting further research with larger samples to better understand the cognitive implications of social media usage among young adults.

Keywords: Social media usage, cognitive flexibility, executive functions, Memory, young adults, digital behavior.

1. INTRODUCTION

Solar The rapid expansion of digital technologies has fundamentally transformed the daily lives of young adults, particularly through the pervasive use of social media platforms. In India, increased smartphone penetration and affordable internet access have led to unprecedented engagement with social networking sites among college-going youth, making social media an integral part of academic, social, and recreational life (Pew Research Center, 2019). While social media offers opportunities for connectivity, self-expression, and information sharing, growing evidence suggests that excessive or unregulated usage may have important cognitive and psychological consequences.

One cognitive domain that may be particularly sensitive to intensive digital engagement is cognitive flexibility, defined as the ability to shift perspectives, generate alternative solutions, and adapt thinking in response to changing situational demands (Dennis & Vander Wal, 2010). Cognitive flexibility is a core component of executive functioning and plays a critical role in problem-solving, decision-making, emotional regulation, and social competence—capacities that are essential for successful functioning in young adulthood (Miyake et al., 2000; Diamond, 2013).

From a Cognitive Load Theory (CLT) perspective, social media environments are characterized by rapid information flow, multitasking demands, constant notifications, and fragmented attention. Such features may impose high levels of extraneous cognitive load, thereby reducing the cognitive resources available for deeper processing and flexible thinking (Sweller, 1988; Sweller et al., 2011). Prolonged exposure to these cognitively demanding digital environments may therefore compromise specific dimensions of cognitive flexibility, particularly those involving generative and adaptive thinking.

Despite increasing scholarly attention to the psychological effects of social media, empirical research examining its association with distinct dimensions of cognitive flexibility—especially within the Indian higher education context—remains limited. Moreover, demographic factors such as gender, residence, family structure, and educational qualification may shape both social media usage patterns and cognitive outcomes, yet findings in this area remain mixed and inconclusive.

Against this backdrop, the present study seeks to examine (a) demographic differences in social media usage, (b) demographic variations in cognitive flexibility, and (c) the relationship between social media usage and the two core dimensions of cognitive flexibility—Alternatives and Control—among college-going young adults. By integrating Cognitive Load Theory with Executive Function Theory, the study aims to provide a theoretically grounded understanding of how digital engagement may selectively influence cognitive functioning in emerging adulthood.

2. REVIEW OF LITERATURE

2.1 Social Media Usage and Demographic Differences

A substantial body of research has documented demographic variations in social media usage, particularly with respect to gender. Several studies report that males tend to spend more time on social media platforms and are more likely to engage in entertainment-oriented, gaming, and content-consumption activities, whereas females often use social media for relational communication and emotional expression (Andreassen et al., 2016; Kuss & Griffiths, 2017). These differences suggest that usage intensity and purpose may vary by gender, potentially leading to different cognitive and psychological outcomes.

However, contrasting evidence has also emerged, particularly in Indian contexts. Dikshit and Kiran (2025) found that although females may not always report higher usage duration, they often experience greater psychological vulnerability in relation to social media use, including higher levels of anxiety, depression, and stress. This divergence highlights that time spent on social media alone may not fully capture its impact; instead, the qualitative nature of engagement and individual susceptibility may play a crucial role.

Beyond gender, earlier research suggested that residence (urban vs. rural), family structure, and educational background could influence digital access and usage patterns. However, recent studies indicate that the digital divide in India has narrowed considerably due to widespread smartphone availability, resulting in increasingly homogeneous social media usage across social categories (Vaterlaus et al., 2021). This trend suggests that demographic factors may now exert a weaker influence on usage intensity among young adults.

2.2 Cognitive Flexibility and Executive Functioning

Cognitive flexibility is widely recognized as a multidimensional construct within the broader

framework of executive functions. According to Executive Function Theory, cognitive flexibility enables individuals to disengage from dominant responses, shift mental sets, and adapt behavior to novel or complex situations (Miyake et al., 2000). Dennis and Vander Wal (2010) conceptualized cognitive flexibility as comprising two distinct but related dimensions: CFI–Alternatives, reflecting the ability to generate multiple solutions and perspectives, and CFI–Control, reflecting perceived control over difficult thoughts and situations.

Research suggests that cognitive flexibility stabilizes during late adolescence and early adulthood and is influenced more strongly by cognitive habits, environmental demands, and task exposure than by basic demographic characteristics (Diamond, 2013). Empirical studies have often reported minimal or inconsistent gender differences in cognitive flexibility, supporting the view that it is relatively independent of sociodemographic variables in young adult populations (Ionescu, 2012).

Family and social environments, however, may subtly contribute to the development of flexible thinking. Exposure to diverse viewpoints, collaborative problem-solving, and complex interpersonal interactions—often associated with joint family systems or rich social contexts—has been theoretically linked to enhanced cognitive flexibility (Dennis & Vander Wal, 2010). Nonetheless, such effects are often modest and may require larger samples or longitudinal designs to detect reliably.

2.3 Social Media Usage and Cognitive Flexibility

The relationship between social media usage and cognitive functioning has gained increasing scholarly attention. From a Cognitive Load Theory standpoint, frequent task-switching, continuous partial attention, and algorithm-driven content consumption can overload working memory and reduce the capacity for reflective and flexible cognition (Sweller, 1988; Sweller et al., 2011). Empirical evidence suggests that heavy media multitasking is associated with poorer attentional control and reduced cognitive flexibility (Ophir, Nass, & Wagner, 2009).

Importantly, recent studies indicate that social media may not uniformly affect all aspects of cognitive functioning. Generative aspects of cognition—such as idea generation, perspective shifting, and alternative thinking—appear particularly vulnerable to excessive digital stimulation, whereas emotion-related control processes may be comparatively resilient (Wilmer, Sherman, & Chein, 2017). This distinction aligns closely with the bifactorial structure of cognitive flexibility proposed by Dennis and Vander Wal (2010).

Within Indian samples, research on social media has largely focused on psychological well-being rather than cognitive processes. Studies have linked higher social media usage to increased stress, anxiety, and reduced mental well-being among adolescents and young adults (Dikshit & Kiran, 2025; Singhal et al., 2021; Taddi et al., 2024;), but its specific association with executive functions such as cognitive flexibility remains underexplored. This gap underscores the need for research that integrates cognitive theory with digital behavior in culturally relevant contexts.

Existing literature suggests that while demographic factors—particularly gender—may influence social media usage patterns, cognitive flexibility appears to be relatively stable across demographic groups in young adulthood. Emerging theoretical and empirical evidence indicates that excessive social media usage may selectively impair generative components of cognitive flexibility by increasing cognitive load, while leaving control-related aspects relatively unaffected. However, there is a clear paucity of empirical studies examining these relationships simultaneously within Indian college populations using multidimensional measures of cognitive flexibility.

3. OBJECTIVES OF THE STUDY

1. To examine the pattern of social media usage among young adults across demographic variables.
2. To assess differences in cognitive flexibility (Alternatives and Control) across demographic variables.
3. To examine the differential association of social media usage with the two dimensions of cognitive flexibility, namely the ability to generate alternatives and perceived control over difficult situations.

4. HYPOTHESES OF THE STUDY

H_{01}: There is no significant difference in social media usage across demographic variables.

H_{02}: There is no significant difference in cognitive flexibility (CFI–Alternatives and CFI–Control) across demographic variables.

$H_0$3: Social media usage hours are not significantly related to the CFI–Alternatives dimension of cognitive flexibility.
$H_0$4: Social media usage hours are not significantly related to the CFI–Control dimension of cognitive flexibility.

5. METHODOLOGY

5.1 Research Design

The present investigation was conducted as a pilot study adopting a quantitative, cross-sectional, descriptive–correlational research design to examine patterns of social media usage and its relationship with cognitive flexibility among young adults. Although the study was exploratory in nature, a simple random sampling method was adopted to improve representativeness and test the feasibility of probability-based sampling for a larger study. The design was appropriate for assessing group differences across demographic variables as well as the strength and direction of associations between social media usage and dimensions of cognitive flexibility without manipulating any variables.

5.2 Population and Sample

The target population for this pilot study comprised college-going young adults aged 20–24 years enrolled in higher education institutions in Lucknow, Uttar Pradesh. The accessible population included students from undergraduate, postgraduate, and professional courses. Given the exploratory nature of a pilot study, a sample of 50 participants was considered adequate to examine preliminary trends, and evaluate statistical assumptions prior to conducting a Large-scale study.

5.3 Sampling Technique

A simple random sampling technique was employed for the selection of participants in this pilot study. Colleges and participants were approached in Lucknow, Uttar Pradesh, and eligible students were randomly selected from the available student lists/class groups to ensure that each individual had an equal probability of being included in the study. The use of random sampling, even at the pilot stage, was intended to reduce selection bias and enhance the representativeness of the sample. Although the sample size was relatively small (N = 50), random selection helped improve the internal validity of the findings and provided more reliable preliminary estimates for planning a future large-scale study.

5.4 Procedure

The pilot study was carried out in Lucknow (Uttar Pradesh, India) across educational Institutes. Participants were approached in person on campus. Prior to data collection, the objectives of the study were clearly explained, and participants were assured of confidentiality, anonymity, and their right to withdraw at any time without any consequences. Written informed consent was obtained from all respondents. Data were collected using standardized self-report questionnaires. Participants completed the questionnaires in a quiet and comfortable setting within their institutions. The average time taken to complete the survey was approximately 15–20 minutes. Completed questionnaires were screened for completeness before data entry and coding for analysis.

5.5 Participants

The final sample consisted of 50 respondents, including 22 males (44.0%) and 28 females (56.0%). With respect to residence, 35 participants (70.0%) belonged to urban areas and 15 participants (30.0%) to rural areas. Regarding family structure, 33 participants (66.0%) were from nuclear families and 17 participants (34.0%) from joint families. In terms of educational qualification, 21 participants (42.0%) were undergraduates, 25 (50.0%) were postgraduates, and 4 (8.0%) were enrolled in doctoral or professional courses.

5.6 Measures

1. Social Media Usage: Social media usage was assessed using a self-reported measure of average daily social media usage hours. Participants were asked to indicate the approximate number of hours they spent on social media platforms each day. Higher scores reflected greater engagement with

social media. Self-reported usage measures have been widely employed in prior digital behavior research.

2. Flexibility Inventory: The Cognitive Flexibility Inventory (CFI), developed by Dennis and Vander Wal (2010), is a 22-item self-report instrument designed to assess the frequency with which individuals employ cognitive and behavioral strategies to challenge maladaptive thoughts. Responses are recorded on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale demonstrates strong psychometric properties, with Cronbach's alpha values indicating good to excellent internal consistency for the Alternatives subscale (α = .91), the Control subscale (α = .86), and the overall scale (α = .90) (Dennis & Vander Wal, 2010). In addition, the CFI has shown adequate convergent construct validity. Total scores range from 22 to 154, with higher scores reflecting greater levels of cognitive flexibility.

6. RESULTS

Table 1: Demographic Characteristics of the Respondents (N = 50)

Variable	Category	Frequency	Percentage (%)
Gender	Male	22	44.0
	Female	28	56.0
Residence	Urban	35	70.0
	Rural	15	30.0
Family Type	Nuclear	33	66.0
	Joint	17	34.0
Educational Qualification	Undergraduate	21	42.0
	Post Graduate	25	50.0
	Others (PhD and Professional Courses)	4	8.0

Table 1 presents the demographic profile of the respondents (N = 50). The sample consisted of a higher proportion of females (56.0%) compared to males (44.0%). With respect to place of residence, the majority of respondents belonged to urban areas (70.0%), while 30.0% were from rural areas. In terms of family structure, most participants reported living in nuclear families (66.0%), whereas 34.0% belonged to joint families. Regarding educational qualification, half of the respondents were postgraduates (50.0%), followed by undergraduates (42.0%). A smaller proportion of participants (8.0%) were enrolled in doctoral or professional courses. Overall, the demographic distribution indicates a predominantly urban, postgraduate, and nuclear-family-based sample.

Table 2: Comparison of Social Media Usages Across Demographic Variables

Variable	Subcategory	N	Mean ± SD	Test Statistic	df	Sig.
Gender	Male	22	3.55 ± 0.74	t = 3.134	48	.003**
	Female	28	2.82 ± 0.86			
Residence	Urban	35	3.14 ± 0.81	t = 0.035	48	.972
	Rural	15	3.13 ± 1.06			
Family Type	Nuclear	33	3.21 ± 0.78	t = 0.804	48	.426
	Joint	17	3.00 ± 1.06			
Educational Qualification	Undergraduate	21	3.14 ± 0.91	F = 1.228	2, 47	.302
	Post Graduate	25	3.24 ± 0.88			
	Others (PhD and Professional Courses)	4	2.50 ± 0.58			

Table 2 presents the comparison of social media usage hours across different demographic variables among the participants (N = 50). An independent samples t-test revealed a statistically significant

gender difference in social media usage, with males (M = 3.55, SD = 0.74) reporting significantly higher usage than females (M = 2.82, SD = 0.86), t(48) = 3.134, p = .003. No significant differences were observed in social media usage based on place of residence, as urban (M = 3.14, SD = 0.81) and rural participants (M = 3.13, SD = 1.06) reported nearly similar usage levels, t(48) = 0.035, p = .972. Similarly, social media usage did not differ significantly across family type, with participants from nuclear families (M = 3.21, SD = 0.78) and joint families (M = 3.00, SD = 1.06) showing comparable mean scores, t(48) = 0.804, p = .426. Further, a one-way ANOVA indicated no significant differences in social media usage across educational qualification groups, F(2, 47) = 1.228, p = .302. Undergraduate, postgraduate, and participants from PhD/professional courses demonstrated similar levels of social media use. Overall, the findings suggest that gender is the only demographic variable that significantly differentiates social media usage in the present sample, while residence, family type, and educational qualification do not show significant effects.

Table 3: Gender Differences in Cognitive Flexibility

Variable	Group	N	M ± SD	t	df	p (Sig.)
CFI – Alternatives	Male	22	61.27 ± 19.42	-1.481	48	.145
	Female	28	68.04 ± 12.77			
CFI – Control	Male	22	31.45 ± 6.12	0.986	48	.329
	Female	28	29.32 ± 8.56			

Table 3 presents the gender-wise comparison of cognitive flexibility among the respondents (N = 50). Independent samples t-tests were conducted to examine gender differences across the two dimensions of cognitive flexibility, namely CFI–Alternatives and CFI–Control. The results indicate that although female participants (M = 68.04, SD = 12.77) scored higher than male participants (M = 61.27, SD = 19.42) on the CFI–Alternatives dimension, this difference was not statistically significant (t(48) = −1.481, p = .145). Similarly, no significant gender difference was observed on the CFI–Control dimension, where males (M = 31.45, SD = 6.12) and females (M = 29.32, SD = 8.56) showed comparable mean scores (t(48) = 0.986, p = .329). Overall, the findings suggest that gender did not significantly influence cognitive flexibility in the present sample.

Table 4: Comparison of Cognitive Flexibility Scores Across Urban and Rural Respondents

Variable	Group	N	M ± SD	t	df	p (Sig.)
CFI – Alternatives	Urban	35	65.23 ± 17.05	0.111	48	.912
	Rural	15	64.67 ± 14.63			
CFI – Control	Urban	35	29.43 ± 7.87	-1.188	48	.241
	Rural	15	32.20 ± 6.75			

Table 4 presents the comparison of cognitive flexibility scores between urban and rural respondents. Independent samples t-tests were conducted to examine differences in the two dimensions of cognitive flexibility, namely CFI–Alternatives and CFI–Control. The results indicated no significant difference between urban (M = 65.23, SD = 17.05) and rural respondents (M = 64.67, SD = 14.63) on the CFI–Alternatives dimension (t(48) = 0.111, p = .912). Similarly, no statistically significant difference was observed on the CFI–Control dimension between urban (M = 29.43, SD = 7.87) and rural participants (M = 32.20, SD = 6.75), t(48) = −1.188, p = .241. Overall, the findings suggest that place of residence (urban vs. rural) did not significantly influence cognitive flexibility scores among the respondents.

Table 5: Comparison of Cognitive Flexibility Scores Across Family Type

Variable	Group	N	M ± SD	t	df	p (Sig.)
CFI – Alternatives	Nuclear	33	62.97 ± 17.70	-1.278	48	.207
	Joint	17	69.12 ± 12.35			
CFI – Control	Nuclear	33	30.21 ± 8.66	-0.062	48	.951
	Joint	17	30.35 ± 5.13			

Table 5 presents the comparison of cognitive flexibility scores across family type among the respondents (N = 50). Independent samples t-tests were conducted to examine differences between participants from nuclear and joint families on the two dimensions of cognitive flexibility, namely CFI–Alternatives and CFI–Control. The results indicate that respondents from joint families (M = 69.12, SD = 12.35) reported slightly higher scores on the CFI–Alternatives dimension compared to those from nuclear families (M = 62.97, SD = 17.70); however, this difference was not statistically significant ($t(48) = -1.278$, $p = .207$). Similarly, no significant difference was observed on the CFI–Control dimension between respondents from nuclear families (M = 30.21, SD = 8.66) and joint families (M = 30.35, SD = 5.13), ($t(48) = -0.062$, $p = .951$). Overall, the findings suggest that family type did not significantly influence cognitive flexibility scores among the participants in the present study.

Table 6: Comparison of Cognitive Flexibility Scores Across Educational Qualification Groups

Variable	Group	N	M ± SD	F	p (Sig.)
CFI – Alternatives	Undergraduate	21	65.86 ± 14.45	0.062	.940
	Post Graduate	25	64.24 ± 17.09		
	Others	4	66.00 ± 23.59		
CFI – Control	Undergraduate	21	29.52 ± 7.24	1.167	.320
	Post Graduate	25	30.00 ± 8.11		
	Others (PhD and Professional Courses)	4	35.75 ± 4.57		

Table 6 presents the comparison of cognitive flexibility scores across different educational qualification groups among the respondents (N = 50). One-way Analysis of Variance (ANOVA) was conducted to examine whether cognitive flexibility differed significantly across undergraduate, postgraduate, and other educational categories. For the CFI–Alternatives dimension, the mean scores were comparable across educational groups, with undergraduates reporting a mean score of 65.86 (SD = 14.45), postgraduates 64.24 (SD = 17.09), and participants from other educational backgrounds 66.00 (SD = 23.59). The ANOVA results indicated that these differences were not statistically significant, $F(2, 47) = 0.062$, $p = .940$. Similarly, for the CFI–Control dimension, undergraduates obtained a mean score of 29.52 (SD = 7.24), postgraduates 30.00 (SD = 8.11), and respondents belonging to other categories (PhD and professional courses) 35.75 (SD = 4.57). The observed differences across groups were not statistically significant, $F(2, 47) = 1.167$, $p = .320$. Overall, the findings suggest that educational qualification did not have a significant effect on cognitive flexibility across either the Alternatives or Control dimensions in the present sample.

Table 7: Correlation Matrix Among Electronic Use Hours and Cognitive Flexibility Variables

Variables	Social Media Usages	CFI – Alternatives	CFI – Control
1. Social Media Usages	1		
2. CFI – Alternatives	−.345*	1	
3. CFI – Control	−.089	.079	1

Table 7 presents the Pearson correlation coefficients examining the relationship between social media usage hours and dimensions of cognitive flexibility among the respondents (N = 50). Social media usage showed a significant negative correlation with the CFI–Alternatives dimension ($r = -.345$, $p < .05$), indicating that higher social media usage is associated with a lower ability to generate alternative solutions and flexible thinking. However, social media usage did not exhibit a significant relationship with the CFI–Control dimension ($r = -.089$), suggesting that perceived control over difficult situations is not substantially related to time spent on social media. Additionally, the correlation between the two dimensions of cognitive flexibility—CFI–Alternatives and CFI–Control—was positive but non-significant ($r = .079$), indicating that these two aspects of cognitive flexibility function relatively independently in the present sample. Overall, the findings suggest that increased social media usage may be specifically associated with reduced cognitive flexibility in terms of generating alternatives, while other aspects of cognitive control remain unaffected.

7. DISCUSSION

The present study examined patterns of social media usage and its association with cognitive flexibility among young adults, while also assessing demographic variations in both social media usage and cognitive flexibility. The demographic characteristics of the sample (Table 1) reveal a predominance of female, urban, postgraduate, and nuclear-family participants. This distribution is reflective of contemporary higher education contexts in India, where urban youth have greater access to digital technologies and social media platforms (Pew Research Center, 2019). Such accessibility creates an environment of continuous digital stimulation, making this population particularly relevant for examining the cognitive implications of social media use.

The finding that males reported significantly higher social media usage than females (Table 2) is consistent with prior research suggesting gender-based differences in the intensity and purpose of digital engagement. Studies indicate that males are more likely to engage in prolonged and repetitive usage patterns, often linked to entertainment-oriented content, whereas females tend to use social media for relational and communicative purposes (Andreassen et al., 2016; Kuss & Griffiths, 2017). However, this pattern contrasts with the findings of Dikshit and Kiran (2025), who reported higher psychological vulnerability associated with social media usage among female adolescents, suggesting that although males may spend more time on social media, females may experience more pronounced psychological impacts of such engagement. This contrast highlights that gender differences in social media use may be better understood not only in terms of usage intensity but also in relation to the nature of engagement and its psychological consequences across different age groups and outcome variables.

From a Cognitive Load Theory perspective, higher usage hours may result in sustained exposure to rapid, fragmented information streams, increasing extraneous cognitive load. This can reduce the availability of cognitive resources required for deeper processing and flexible thinking (Sweller et al., 2011). The absence of significant differences in social media usage across residence, family type, and educational qualification suggests that digital engagement has become largely homogenized across these social categories. This finding aligns with recent literature highlighting the diminishing urban–rural digital divide due to widespread smartphone penetration and affordable internet access (Vaterlaus et al., 2021).

Across gender, residence, family type, and educational qualification (Tables 3–6), no statistically significant differences were observed in cognitive flexibility scores. These results suggest that cognitive flexibility may be relatively independent of basic demographic factors in young adulthood. According to Executive Function Theory, cognitive flexibility is a core executive process that stabilizes after late adolescence and is more strongly influenced by cognitive habits and task demands than by demographic background alone (Miyake et al., 2000; Diamond, 2013).

Although non-significant, trends such as higher CFI–Alternatives scores among females and joint-family participants may reflect richer social interactions and exposure to diverse perspectives, which have been theoretically linked to flexible thinking (Dennis & Vander Wal, 2010). However, the lack of statistical significance suggests that these influences may be subtle or require larger samples to detect reliably.

The most theoretically meaningful finding of the study emerges from the correlation analysis (Table 7). Social media usage was significantly and negatively correlated with the CFI–Alternatives dimension, indicating that increased usage is associated with reduced ability to generate multiple solutions and adaptively shift perspectives. This finding is strongly aligned with Cognitive Load

Theory, which posits that excessive exposure to fast-paced, attention-demanding stimuli can overload working memory, thereby impairing higher-order cognitive processes such as flexible thinking and problem-solving (Sweller, 1988). Social media platforms, characterized by continuous notifications, algorithm-driven content, and rapid task-switching, may foster surface-level processing at the expense of reflective cognition (Ophir, Nass, & Wagner, 2009).

Importantly, social media usage was not significantly related to the CFI–Control dimension, suggesting that perceived control over difficult situations may be more resilient to digital consumption patterns. This dissociation supports the multidimensional structure of cognitive flexibility proposed by Dennis and Vander Wal (2010), wherein Alternatives reflects generative and creative cognitive processes, while Control reflects emotion regulation and perceived coping ability. The latter may be shaped more strongly by personality traits, resilience, or emotional regulation strategies than by media usage alone. The non-significant correlation between CFI–Alternatives and CFI–Control further reinforces the conceptual distinction between these two components, underscoring the importance of examining cognitive flexibility as a multidimensional construct rather than a unitary ability.

8. Conclusion

The present pilot study examined patterns of social media usage and their association with cognitive flexibility among college-going young adults. The findings revealed that gender was the only demographic variable to significantly influence social media usage, with males reporting higher usage hours than females. Residence, family type, and educational qualification, by contrast, did not yield significant differences in social media usage, suggesting that digital engagement has become relatively uniform across these demographic categories. The results further indicated that cognitive flexibility across both dimensions, CFI Alternatives and CFI Control did not differ significantly across any of the demographic variables examined. This suggests that cognitive flexibility in young adulthood may be relatively independent of basic sociodemographic characteristics.

Importantly, correlation analysis revealed a significant negative relationship between social media usage and the CFI Alternatives dimension, indicating that higher social media usage is associated with a reduced ability to generate alternative solutions and perspectives. No significant relationship, however, was found between social media usage and the CFI Control dimension. Overall the findings suggest that excessive social media engagement may selectively impair the generative aspects of cognitive flexibility, while perceived control over difficult situations remains comparatively unaffected. Given that this was a pilot study conducted with a limited sample, the results offer preliminary insights and underscore the need for future research with larger, more diverse samples to more thoroughly examine the cognitive implications of social media use among young adults.

9. Implications of the Findings

The findings have important theoretical and practical implications. From a theoretical standpoint, the results support models that emphasize selective cognitive effects of digital media use, rather than a generalized cognitive decline narrative. Practically, the results underscore the need for balanced and mindful social media engagement, particularly for young adults whose academic and professional success relies heavily on adaptive thinking and problem-solving abilities. Interventions aimed at promoting digital well-being may benefit from focusing not only on reducing screen time but also on encouraging active, reflective, and cognitively engaging digital behaviors.

10. Limitations and Future Directions

Despite its contributions, the study has certain limitations. The relatively small sample size and cross-sectional design limit causal interpretations. Self-reported measures of social media usage may also be subject to reporting bias. Future research should employ longitudinal designs, objective usage tracking, and more diverse samples to further elucidate the directionality and mechanisms underlying the observed relationships.

REFERENCE

1. Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and

symptoms of psychiatric disorders: A large-scale cross-sectional study. Psychology of Addictive Behaviors, 30(2), 252–262. https://doi.org/10.1037/adb0000160

2. Dennis, J. P., & Vander Wal, J. S. (2010). The Cognitive Flexibility Inventory: Instrument development and estimates of reliability and validity. Cognitive Therapy and Research, 34(3), 241–253. https://doi.org/10.1007/s10608-009-9276-4

3. Diamond, A. (2013). Executive functions. Annual Review of Psychology, 64, 135–168. https://doi.org/10.1146/annurev-psych-113011-143750

4. Dikshit, R., & Kiran, U. (2025b). Social Media Usage and Its Psychological Impact: A study of Anxiety, Depression, and Stress among Adolescents in Lucknow. the Bioscan., 20(Special Issue-3), 608–615. https://doi.org/10.63001/tbs.2025.v20.i03.s.i(3).pp469-476

5. Ionescu, T. (2012). Exploring the nature of cognitive flexibility. New Ideas in Psychology, 30(2), 190–200. https://doi.org/10.1016/j.newideapsych.2011.11.001

6. Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. International Journal of Environmental Research and Public Health, 14(3), Article 311. https://doi.org/10.3390/ijerph14030311

7. Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis. Cognitive Psychology, 41(1), 49–100. https://doi.org/10.1006/cogp.1999.0734

8. Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. Proceedings of the National Academy of Sciences of the United States of America, 106(37), 15583–15587. https://doi.org/10.1073/pnas.0903620106

9. Pew Research Center. (2019). Mobile technology and social media use in emerging economies. https://www.pewresearch.org

10. Singhal, A., Malhotra, P., Ramachandran, A., & Chauhan, R. (2021). Impact of social media on mental health among adults during the period of lockdown in Delhi- NCR: A cross sectional study. The Journal of Community Health Management, 8(1), 33–39. https://doi.org/10.18231/j.jchm.2021.008

11. Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. Cognitive Science, 12(2), 257–285. https://doi.org/10.1207/s15516709cog1202_4

12. Sweller, J., Ayres, P., & Kalyuga, S. (2011). Cognitive load theory. Springer. https://doi.org/10.1007/978-1-4419-8126-4

13. Taddi, V. V., Kohli, R. K., & Puri, P. (2024). Perception, use of social media, and its impact on the mental health of Indian adolescents: A qualitative study. World Journal of Clinical Pediatrics, 13(3), 97501. https://doi.org/10.5409/wjcp.v13.i3.97501

14. Vaterlaus, J. M., Beckert, T. E., Tulane, S., & Bird, C. V. (2021). "They always ask what I'm doing and who I'm with": Parental mediation of adolescent social media use. Emerging Adulthood, 9(2), 330–343. https://doi.org/10.1177/2167696820944727

15. Wilmer, H. H., Sherman, L. E., & Chein, J. M. (2017). Smartphones and cognition: A review of research exploring the links between mobile technology habits and cognitive functioning. Frontiers in Psychology, 8, Article 605. https://doi.org/10.3389/fpsyg.2017.00605

