

Studying the Relationship between Achievement Motivation and Smartphone Addiction among College Students

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The present study aimed to examine the relationship between Smartphone addiction and achievement motivation among male and female college students. In this study 263 college students whose age ranged between 17 to 27 years were recruited, out of which 129 were males (Mean age=21.47, SD=2.11) and 134 were females (Mean age=21.67, SD=1.59). Smartphone Addiction Scale Short Version (SAS-SV) and Ray's Achievement Orientation Scale were used to measure Smartphone addiction and achievement motivation respectively. Further, t-test was performed on the obtained data and result revealed a significant difference among males and females with t-value =-3.127, $p<0.05$; and t-value-3.674, $p<0.05$ on Smartphone addiction and achievement motivation respectively. Further, Pearson correlation was computed, and it was found that achievement motivation was significantly negatively correlated with smartphone addiction at $r=-0.298$, $p<0.01$ for females and $r=-0.238$, $p<0.01$ for male students respectively. Results indicated that students with high achievement motivation were more focused toward their desired goals and smartphone addiction among them was less likely.

Keywords: Achievement Motivation, Smartphone Addiction, Gender

With the advancement in science and technology Smartphone have become an essential part of everyday life. As the number of Smartphone users is increasing, many individuals find it difficult to imagine their lives without this device, consequently making Smartphone a growing concern (Hong et al., 2020). However, these advances in telecommunication have complicated an individual's life (Karki et al., 2020). Velasco (2010) argues that with technological advancement the availability of learning content on the internet has increased significantly. Smartphone has become an integral part of young people's lives. Consequently, hindering their use in the context of education would imply limiting access to the new "knowledge society". It has become an important medium for communication, social relations,

entertainment and learning (Castellana et al., 2007). Like pathological gambling which is considered as a behavioral addiction under DSM-5 there is a consideration going on to include Smartphone addiction under the same category, however the sufficient evidence for formal recognition is pending and needs further exploration (Karki et al., 2020). Smartphone addiction can be defined as, "People's uncontrollable use of their Smartphones which can lead to serious harmful activity at work, while studying, and in daily life" (Liu et al; 2022). Another study defined Smartphone addiction as, "a condition where the use of Smartphone has fulfilled a deep need (dependency, habitual, and addictive behavior) to the extent that the individual has difficulty conducting basic activities of daily life without the concurrent use of Smartphone, and as such caused

neglect of other aspects of one's life" (Sunday et al; 2021). Based on the review Smartphone addiction in the current study can be conceptualized as, "an excessive and compulsive use of Smartphone often to the point that it starts interfering with one's daily activities and responsibilities".

Smartphone usage has both positive and negative consequences. On the positive side Smartphone offers several benefits like information sharing, online interaction with others, access to business opportunities, education resources and enhanced digital media consumption. However, the negative consequences outweigh the positives. There are various symptoms which are exhibited by individuals who use Smartphone for prolonged period of time (Karki et al., 2020) these includes: 1. Self-centric behavior, 2. Difficulty in controlling cravings 3. Disruption in their daily routines despite facing negative consequences 4. Withdrawal symptoms.

Murray (1938) initially developed the concept of achievement motivation which was later worked upon by David McClelland and Atkinson. According to McClelland humans have needs which act as a motivating force and is independent of one's age, gender, culture and race (Mulder, 2015 as cited in Villa & Sebastian, 2021). One of the needs as described by McClelland in his human motivation theory is need for achievement (nAch). Need for achievement can be described as the drive for personal accomplishment, to excel, to achieve and to become successful. Achievement motivation can be conceptualized as, "a drive to stain and pursue goals and persist through challenges in life". Achievement motivation ensures that the students are engaged in the learning process which ensures that they achieve their desired goals as it drives students to take actions and engage in activities and guides the direction of their efforts and influence their 15 choices as a result their actions consistently align with the

learning goals they aim to accomplish (Sopiah, 2021).

There are three important factors that affect achievement motivation, these include probability of achieving the task, incentive value of the task, and persistence in trying to achieve the task (Deckers, 2014, p.213-215).

Relationship between Smartphone Addiction and Achievement Motivation

Research suggests that higher usage of Smartphone leads to low academic motivation (Hashemi et al., 2024). Students limited psychological interest gets depleted due to which they tend to procrastinate (Iftikhar et al., 2022) thus leading to poor achievement drive, another reason being constant notifications from different applications on Smartphone makes it difficult for students to concentrate on their work (Yadav & Reddy, 2023). These results can be understood through media dependency theory by Ball-Rokeach and DeFleur (1976), which suggests that the more people rely on media to achieve their goals, the greater its impact on their behavior.

Young (1998) reported that the use of information and communication technologies does not usually improve students' performance, as they then spend more time using them for tasks irrelevant to school. Students are constantly distracted because of repetitive use of Smartphone, this makes them lose their focus and affects their performance (Verduyn et al., 2022). Furthermore, those who are high on achievement motivation have clear plans, efficiently complete their tasks, and continuously strive for success. As a result, they spend less time on 28 distractions and are less likely to become overly reliant on their Smartphones (Fu et al., 2021). Similar findings were reported that students who are high on motivation tend to work hard, remain persistent, and diligently read to enhance

their achievements. In contrast, those with low motivation tend to be indifferent, get easily discouraged, not focus on lectures, and often skip classes, due to which they struggle to achieve their goals (Mudzakir & Sutrisno, 1997).

Mindfulness has been found to play a mediating role between Smartphone addiction and achievement motivation, as people high on mindfulness tend to be high on positive psychological qualities and boost their self-satisfaction; as a result, they are more likely to concentrate on their goals and actively pursue success; additionally, they tend to be more accepting and tolerant of mistakes, whether made by themselves or by others, which improves their quality of interpersonal relationships and helps reduce their mobile phone addiction (Fu et al., 2021).

Ran (2022) observed that within achievement motivation, two sub dimensions, i.e., hope of success and fear of failure, were found to be associated with Smartphone addiction. Individuals high on hope of success tend to be lower on Smartphone usage. Whereas those high on fear of failure are high on Smartphone usage, as they are more likely not to engage in challenging tasks and may focus more on their Smartphone than other important tasks (Bukhori et al., 2019).

Hamedi and colleagues (2023) found that there is a negative cycle between Smartphone addiction and achievement motive fulfillment. Individuals high on Smartphone usage often report poor sleep, attention, responsibility, mental health, concentration (Hashemi et al., 2024), etc., making it difficult for them to achieve their primary targets. This ultimately leads to a decline in their academic achievement and results in a lack of enthusiasm and achievement motivation.

Yoon and Yun (2023) found that self-control mediated the relationship between

Smartphone addiction and achievement goals. They observed that when it comes to Smartphone usage in students, three types of users emerged: one who used the Smartphone for learning purposes, the second who used it for recreational purposes, and the last who used the Smartphone minimally. Students who were using it for learning purposes showed active self-control, i.e., they used Smartphones only for learning purposes. These types of students were less likely to get addicted to Smartphones and were also high on achievement goals. Those as those who used it for recreational purposes showed low self-control and were found to be high on Smartphone addiction and low on achievement goals, the reason being these types of students are self-satisfied and do not strive for success. The third group with Smartphone usage was found to be practicing passive self-control as they suppressed their desire to use Smartphones even for learning purposes, and hence their achievement goals were found to be lower than those of the learning group. Similar findings were noted by Kim and colleagues (2018), who found that self control ability was a significant predictor of the relationship between Smartphone addiction and achievement.

In a study with 443 Chinese college students, it was found that students who are high on online game addiction tend to be lower in behavioral, cognitive, and emotional engagement, which affects negatively their learning engagement, which in turn mediates the relationship between online game addiction and diminished academic achievement motivation (Sun et al., 2023).

Students who are low on motivation in and outside school tend to be high on Smartphones usage (RAMIREZ et al., 2018). When students lose interest in learning, they struggle to focus on what is being taught, leading to compulsive and excessive use of smart phones. However, when 30 students

can efficiently divide their time between Smartphone usage and learning, their learning achievement remains good (Irna, 2020).

Gender Differences in smartphone usage

In a study with 502 Indian medical students, it was found that about 52.86% of the participants were victims of cyber bullying, and about 38.45% were victims of moderate to severe cyberbullying (Savani et al., 2023). Research suggests that gender plays a moderating role between Smartphone usage and addiction (Savani & Jani, 2023). In studies with college students, it was reported that female tends to use more Smartphone than their male counterparts (Hashemi et al., 2024; Shankar et al., 2018) with them using it for social media (Balođlu et al., 2020 & Karki et al., 2020) for more than 5 hours (Bhalerao et al., 2020). In another study, the opposite results were being found with males more addicted to Smartphone than females (Savani & Jani, 2023 and Lei et al., 2020 & Karki et al., 2020). Males are found to be using Smartphone majorly for communication and gaming, this internet and Smartphone based games have evolved much due to which their popularity among the masses has increased (Matar Boumosleh et al., 2017), this possible reason can explain high prevalence of Smartphone addiction among males.

Literature suggests that there exists no significant difference among male and female students in terms of achievement motivation (Sabir et al., 2020). Other studies have shown that males are high on achievement motivation in comparison to females (Yang et al., 2024). Whereas some studies have found that females are higher on achievement motivation than males (Tafa et al., 2024)

Rationale of the study

To date, limited empirical research has directly focused on the relationship between Smartphone addiction and achievement motivation among college students. Moreover, existing literature largely ignores the role of achievement motivation and focuses on academic performance. This oversight neglects one of the important aspects of students' academic life, where motivation may play a key role in shaping long term success and resilience. Investigating the link between variables is important as it may inform the development of targeted interventions and support systems to help navigate through the detrimental effects of Smartphone addiction.

Furthermore, the relationship between Smartphone addiction and gender remains unclear, with some studies stating that males are more addicted to their Smartphone, whereas others reporting females are more addicted to their Smartphone, and yet others report no significant difference. Similar findings were observed in case of achievement motivation.

Hypotheses

- H₁: Smartphone addiction would be negatively associated with achievement motivation.
- H₂: There would be a difference among male and female on Smartphone addiction.
- H₃: There would be a difference among male and female on achievement motivation.

Method

Participants

The participants were recruited through a multi-stage non-probability sampling approach that combined purposive sampling and snowball sampling approach. The participants having any neurological and

psychological conditions were excluded from the study to avoid any confounds. A total of 278 participants responded, of which 263 valid responses were considered for analysis after data cleaning. The demographic information related to participants is presented in a tabular form in Table 1. As shown in table 1, out of total participants 134 were females (50.95%) and 129 participants were males (49.05%). Their age ranges from 17 to 27 years (M= 22 years, SD= 1.868). In language proficiency majority of the participants reported their proficiency in English (N=263, 100%) and Hindi (N=182, 69.20).

Table 1. Demographic details of the participants

Demographic Information	Frequency	Percentage	Mean	SD
Age	263		21.57	1.868
Male	129	49.05	21.47	2.118
Female	134	50.95	21.67	1.593
Language Proficiency				
English	263	100		
Hindi	182	69.20		
Other	57	21.67		

Instruments

Smartphone Addiction Scale Short Version (SAS-SV): It was developed by Kwon and colleagues (2013), however later on a shorter version of SAS was developed as a quick measure of Smartphone addiction risk. The reliability of the scale was determined using Cronbach's alpha and was found to be 0.91 (Kwon et al., 2013). The Cronbach coefficient for the scale in this sample was determined to be 0.836 reflecting high internal consistency.

Ray's Achievement Orientation Scale (RAOS): It is a self-report inventory developed by John Ray in 1979 as a quick measure of achievement orientation/

motivation. The reliability of the scale was determined using Cronbach's alpha which is 0.713 reflecting moderate internal consistency. Previous studies using the scale have reported similar reliability (Vasanth et al; 2016) coefficients, supporting its validity as a measure of achievement motivation.

Procedure: The present study aims to study the relationship between Smartphone addiction and achievement motivation among college students across genders. Survey method was used for collecting information. The study consisted of a diverse group of students who were contacted through social media ensuring a representative sample. In order to measure Smartphone addiction and achievement motivation Smartphone Addiction Scale Short Version (SAS- SV) and Ray's Achievement Orientation Scale (RASO) were used respectively. The scales were selected based on their established reliability and validity, ensuring the integrity of the data collected. A total of 278 participants responded, of which 263 valid responses were considered for analysis after data cleaning. All responses were anonymized to maintain confidentiality. The data were analyzed using SPSS 20.

Result

Table-2 reveals the result of the Pearsons' correlation analysis between Smartphone addiction, and achievement motivation. As per the outcome, Smartphone addiction is moderately negatively associated with achievement motivation ($r = -0.298, p < 0.0$).

Table 2. Descriptive and correlational analysis of Smartphone addiction, and achievement motivation

Variable	M	SD	Smartphone Addiction	Achievement Motivation
Smartphone Addiction	32.20	9.68	-	-0.298**

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

An independent sample t-test was conducted to compare the gender differences among male and female students in Smartphone addiction and achievement motivation.

Table 3 results reveal that, for Smartphone addiction, Levene's test indicated that the assumption of homogeneity of variance was met, $F= 0.002$, $p= 0.961$. There was significant difference in terms of

Table 3. Mean, SD and t-values of males and females on scales of Smartphone addiction and achievement motivation

Variables	Gender	N	M	SD	t-value	p-value
Smartphone Addiction	Male	129	34.06	9.82	-3.127	0.002
	Female	134	30.40	9.23		
Achievement Motivation	Male	129	32.72	4.42	3.674	0.000
	Female	134	34.70	4.28		

Discussion

The objective of the study was to study the relationship between Smartphone addiction and achievement motivation among college students across genders. The findings indicate significant correlations between smartphone addiction and achievement motivation, highlighting the intricate interplay between psychological and behavioral factors in the digital age. Furthermore, significant gender differences were observed in smartphone addiction and achievement motivation providing valuable insights into how these constructs differ between male and female subjects. These results contribute to the growing body of literature.

Regarding achievement motivation, high scores in Smartphone addiction decreased the overall level of achievement motivation, thus maintaining first hypothesis. These findings are consistent with those of Iftikhar et al., 2022, who found increased Smartphone usage decreases limited

Smartphone addiction between males ($M= 34.06$, $SD= 9.82$) and females ($M= 30.40$, $SD= 9.23$), $t= -3.127$, $p= 0.002$.

For achievement motivation, Levene's test indicated that the assumption of homogeneity of variance was met, $F= 0.001$, $p= 0.981$. There was significant difference in terms of achievement motivation between males ($M= 32.72$, $SD= 4.42$) and females ($M= 34.70$, $SD= 4.28$), $t= 3.674$, $p= 0.000$.

interest, leading to procrastination. In addition, it is congruent with the results obtained by Yadav & Reddy (2023), in which constant notifications from their Smartphone's' made it difficult to concentrate on their tasks.

These results can be understood by the lens of media dependency theory (1976), which states, the more an individual depends upon media for achievement of their goals the more psychological dependence they will develop, which then affects their behavior. In present times, many students are highly dependent on their Smartphone for various academic and non-academic 56 needs, thus the impact of Smartphone on them is also high. Additionally, high Smartphone usage impacts individuals both physically and mentally (Hashemi et al., 2024; Sun et al., 2023) thus making it difficult to concentrate and pursue their goals. Overall Smartphone addiction decreases achievement motivation by fostering procrastination, distractions, and psychological dependence while depleting cognitive and emotional resources.

Regarding gender differences in Smartphone addiction, the findings of the study revealed that males exhibit higher levels of Smartphone addiction compared to females, thus supporting the second hypothesis. This result aligns with previous studies (Savani et al., 2023, Lei et al., 2020, and Karki et al., 2020). One possible reason for this difference lies in the usage patterns, with males primarily use Smartphone for entertainment, communication, gaming and task-oriented purposes which often results into extended screen time. In contrast, females' predominantly use Smartphone for social media purpose (Balođlu et al., 2020), which may not necessarily lead to prolonged usage. The popularity of internet and Smartphone based games have increased over the years (Matar Boumosleh et al., 2017) and this might have contributed to the observed gender disparities, particularly among males. Thus, differences in usage patterns and evolving digital trends play an important role in shaping gender disparities in Smartphone addiction.

However, these results are inconsistent with other studies suggesting, females are more Smartphone addicted than males (Hashemi et al., 2024; Shankar et al., 2018). These differences are likely to arrive through differences in sample demographics. For instance, Hashemi study focused on students from an Afghani college, and Shankar's study included participants aged between 18.5 to 45 years. These variations could influence gender differences, thus highlighting the importance of demographic and cultural factors in determining Smartphone usage patterns.

From the results it is evident that there are significant gender differences in levels of achievement motivation; hence the third hypothesis was accepted. In the current study females are found to be high on

achievement motivation. These findings coincide with other studies (Tafa et al., 2024). In the current study it is found that Smartphone addiction is negatively associated with achievement motivation. This means that being high on Smartphone addiction will automatically decrease an individuals' achievement motivation. And since males were reported high on Smartphone addiction their overall achievement motivation is on the weaker side in relation to females.

In contrast, study by Sabir and colleagues (2020) found no gender difference in terms of achievement motivation thus null hypothesis was accepted, whereas study by Yang and colleagues (2024) reported that males are high on achievement motivation. These discrepancies in results can be accounted for differences in sample size, context and cultural settings. This highlights the fact that further exploration is required to better understand the integration of gender, Smartphone addiction and achievement motivation as a simple explanation is not able to explain the differences in findings.

The findings of the study have some key practical implications; these includes educational interventions that can be developed so as to enhance digital literacy and achievement and boost academic focus among students. Second, creating rules and guidelines for safe internet and Smartphone usage in colleges. Additionally, gender specific interventions can also be developed to promote healthy technology habits by maintaining a balance between offline activities and productivity tools.

Finally, there are certain limitations of the study that should be considered. First, it is a correlational study and hence longitudinal interactions of the variables and their impact over each other were not studied. Second,

self-report measures were used hence there is always a chance for response bias. Third, this was not an experimental study so cause, and effect relationship could not be established here.

Conclusion

Previous studies have focused on academic performance ignoring the role of achievement motivation in relation to Smartphone addiction. Thus, purpose of the present study was to offer a more nuanced understanding of the relationship between Smartphone addiction and achievement motivation among college students and thereby growing the body of literature.

Overall, the findings of the correlational analysis suggest that Smartphone addiction and achievement motivation have significant interrelationships. These, results highlight how digital behaviours and motivational factors are interconnected to one another. Thus, emphasize the importance of addressing these aspects holistically in order to promote students' well-being.

Results of t-test suggest that significant gender differences exist in terms of Smartphone addiction and achievement motivation, suggesting that these variables may be influenced by gender-specific factors.

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