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Original Article

Evaluating the Effects of Screen Time, Social Media Use, and Sleep Duration on Attention Span: A Quantitative Study of Employees in Private Firms

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Abstract

This study examines the influence of screen time, social media usage, and sleep duration on the attention capacity of employees in private companies in Afghanistan. In today's digital work environment, employees spend substantial time in front of screens for both professional and personal activities, which may affect their concentration levels. A quantitative research design was adopted, and data were collected from 250 employees across several private organizations in Kabul using a structured questionnaire. Multiple linear regression analysis was conducted in Stata to examine the relationships among the variables. The overall model was found to be significant ($F = 292.145$, $p < 0.001$) with a strong explanatory power ($R^2 = 0.780$), indicating that the three predictors jointly account for 78% of the variation in attention capacity. Sleep duration demonstrated a positive and significant effect on attention ($\beta = 0.612$, $p < 0.001$), suggesting that employees who sleep longer exhibit better cognitive performance and focus. In contrast, social media usage ($\beta = -0.518$, $p < 0.001$) and screen time ($\beta = -0.394$, $p < 0.001$) showed significant negative associations, implying that excessive digital exposure undermines employees' concentration abilities. The findings align with prior studies emphasizing the role of adequate rest and balanced digital engagement in sustaining cognitive control and workplace productivity. This research contributes to the limited literature on employee attention within the Afghan context and offers practical insights for organizations to promote healthier digital habits and improved work-life balance.

Categories: Sustainable Human Resource, Organisational Development

Keywords: screen time, social media use, sleep duration, attention span, employees, private firms

Introduction

In the digital age of work, private company workers spend considerable hours on screens, sometimes for business and sometimes for personal usage. Computers, smartphones, and other digital devices are necessary for communication, assigning and managing tasks, and consuming entertainment. Przybylski and Weinstein (Przybylski and Weinstein, 2012) remark that "digitally mediated devices have come to permeate our daily existence," and Twenge and Campbell (Twenge and Campbell, 2018) add that they have become ubiquitous in work from home conditions. With the numerous benefits of these digital devices, researchers have begun reporting some negative consequences of screen time and potentially limited mental focus and attention spans. Scholars suggest that prolonged exposure to digital screens can lead to mental fatigue, difficulties in maintaining attention, and an overall diminished ability to focus for extended periods (Cain and Gradisar, 2010). Similar to this study, Ophir et al. (Ophir et al., 2009) established that multitasking on digital devices

undermines attention control, and Mark (Mark, 2023) noted that phones distract individuals and reduce their focus on tasks at hand. This consistent digital stimulation, or "Popcorn Brain," describes a state in which humans cannot get adequate digital input, which may lead to shorter attention spans (Eyal, 2024).

A growing amount of research has indicated that excessive screen time has detrimental effects on attention capacities making it more challenging for people to focus on the task at hand. Przybylski and Weinstein (Przybylski and Weinstein, 2012) discovered this phenomenon in general users, and Twenge and Campbell (Twenge and Campbell, 2018) extended this research base to digital behavior studies in screen time. Mark et al. (Mark et al., 2008) also reported analogous generalizability even in more recent research. The cognitive overload and disengagement from sustained attention can also be linked to prolonged screen time (Shalash et al., 2024) (Neophytou et al., 2021). In addition to screen time - not just work time - many employees can especially be found on TikTok, Instagram, and Facebook. The design of these platforms works at a fast pace and encourages continuous checking, not allowing for full focus and interrupting workflows. Rosen et al. (Rosen et al., 2011) noted in their research how social media use interrupts task performance. Brooks (Brooks, 2015) revealed an addictive design in social media applications. More recently, Montag et al. (Montag et al., 2021) and Parry et al. (Parry et al., 2021) have demonstrated that checking notifications and social media updates has a decidedly negative effect on attention span. Finally, Poles (Poles, 2025) stated that even the entertainment features of social media applications distract and interrupt individuals who are attempting to focus on tasks at work.

The cognitive switch that happens between work tasks and social media is known to damage working memory and decrease performance on the task. Ophir et al. (Ophir et al., 2009) found that multitasking resulted in a decreased ability to control cognition. Draheim et al. (Draheim et al., 2016) reported evidence showing that multitasking will negatively impact productivity. Further, recent findings have suggested that excessive social media use can lead to emotional exhaustion and decreased cognitive control (Zhang et al., 2021). Recent studies by Capraro et al. (Capraro et al., 2025) and Jong et al. (Jong et al., 2021) have also reported findings that go along with social media fatigue contributing to cognitive overload. Another important factor which has an impact on attention span is the amount of sleep. Sleep is a necessary function supporting brain functions such as memory, decision-making, and sustained attention. Sleep deprivation negatively impacts cognitive performance (Killgore, 2010), and regular sleeping helps maintain attention (Walker, 2017). Irregular sleep patterns can cause a decreased ability to focus and impact work performance, which can often come from scrolling on a device or being on social media late at night (Rodrigues and Shigaeff, 2022). Litwiller et al. (Litwiller et al., 2017) similarly described effects of inconsistent sleep on workers' cognitive functions. When the brain has not been given sufficient sleep, its ability to sustain attention is reduced, which leads to higher rates of errors during task completion (Lim and Dinges, 2008) (Jackson et al., 2013).

While different studies have investigated these issues for students and adolescents, little to no studies have focused on screen time, social media use, and sleep length for employees, particularly as it relates to work in Afghan private firms. Employees have different professional responsibilities and demands than students, which may lead to different uses of technology as well as different sleep patterns. Additionally, the increasing digital transformation and unique workplace culture in Afghanistan indicates the importance of studying these topics, with a focus on this local context (Khpalwak and Hamidi, 2024). For example, employees may report interrupting their work based on notifications and other digital distractions. Addas and Pinsonneault (Addas and Pinsonneault, 2015) find that these disruptions may take up to thirty minutes of time to fully regain attention. Mark et al. (Mark et al., 2008) published similar findings related to task interruptions in an office context to further signal digital distraction as it relates to work. The concept of “continuous partial attention” describes one’s ability to remain constantly distracted between responsibilities. Ultimately, this leads to lowered productivity and an increased likelihood of errors in knowledge-based work contexts (Fırat, 2013).

Thus, it is vital to understand the interaction of screen time, social media usage, and sleep duration and their cumulative effect on attention span in an effort to better design strategies for improving workplace effectiveness and employee wellness. The present study investigates the impact of screen time, social media use, and sleep duration on attention span among employees working for private companies. This population was selected to address a gap in the literature and provide targeted strategies for healthier technology habits, improved sleep patterns, and enhanced focus and productivity.

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Problem statement

These days, employees spend prolonged hours engaging in screen-based activities related to either work or personal use. Digital tools can increase productivity and efficiency, but prolonged engagement with screens and frequent social media use may interfere with focus and attention span (Przybylski and Weinstein, 2012) (Twenge and Campbell, 2018). Social media use, in particular, is associated with frequent interruptions (Rosen et al., 2011) (Montag et al., 2021). Irregular or poor sleep can further impair attention and performance at work (Killgore, 2010) (Walker, 2017). Long hours of screen engagement and late-night social media use can shorten the time spent sleeping, and this limited time to sleep may affect productivity. The majority of studies on screen time, social media, sleep, attention span, and productivity have focused primarily on students, and little is known about employees in the private sector in Afghanistan. Because work obligations and use of technology differ from those of students, there is value in understanding how these factors affect the attention span of employees in order to improve productivity and efficiency in the workplace.

Based on the above discussion, the study explicitly formulates clear research objectives and testable hypotheses to empirically examine the effects of screen time, social media use, and sleep duration on employees' attention span in private firms. These objectives and hypotheses are presented in the following sections.

Research Questions

1. Does screen time significantly affect the attention span of employees in private firms?

2. Is there a significant relationship between social media use and employees' attention span?

3. Does sleep duration have a significant effect on the attention span of employees in private firms?

Research Objectives

1. To examine the effect of screen time on the attention span of employees in private firms.

2. To determine the relationship between social media use and the attention span of employees in private firms.

3. To investigate the influence of sleep duration on the attention span of employees in private firms.

Hypotheses and Rationale

H1: Higher screen time is negatively associated with attention span among employees in private firms.
Studies also found that excessive screen time can compromise attention capacity. For example, Przybylski and Weinstein (Przybylski and Weinstein, 2012) established an association between excessive screen exposure and difficulty in staying focused along with weaker attentional control. Correspondingly, Twenge and Campbell (Twenge and Campbell, 2018) reported that people who spend much time on screens often tend to have short attention spans. Overall, the findings tend to suggest that increased screen exposure can negatively impact the capacity of the employee to be focused in the workplace.

H2: Increased social media use is negatively associated with attention span among employees in private firms.
Constant notifications and new content on social media sites can create interruptions that adversely affect sustained attention. For example, Rosen et al. (Rosen et al., 2011) discovered that individuals who frequently used social media exhibited diminished attention and were more prone to distractions. Additionally, Montag et al. (Montag et al., 2021) demonstrated that high volumes of social media usage is associated with attention difficulties. These findings support the growing notion that increased social media usage is associated with reduced attention span.

H3: Longer sleep duration is positively associated with attention span among employees in private firms.
Obtaining enough sleep is crucial to supporting good attention. Killgore (Killgore, 2010) showed that sleep deprivation negatively affected attention and cognitive functioning. Walker (Walker, 2017) articulately discussed how getting enough sleep helps with memory and attention. These findings, in conclusion, suggest that employees with better sleep will hold better attention.

Literature review

Screen Time and Attention Span

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One of the most popular concerns in recent research is related to screen time's effect on the ability of workers to pay attention and perform tasks effectively. Screen time, which is the cumulative time people spend in front of electronic devices, has been proven to negatively affect attention and cognitive performance. Following the research of Twenge and Campbell (Twenge and Campbell, 2018), it was found that excessive screen exposure would decrease attention span and elevate mental fatigue. Supporting this evidence, it was observed by Baumgartner et al. (Baumgartner et al., 2017) that adults dedicating more hours to screen time find it challenging to sustain task persistence and reveal less concentration in the long term.

The broader issue of screen time encompasses social media usage, which has been identified as a significant element impacting concentration in the workplace. Social media platforms such as Instagram, Twitter, and TikTok are engineered to promote habitual checking behaviors, thus hindering users' ability to sustain their workflow. Kuss and Griffiths (Kuss and Griffiths, 2017) articulated how these platforms interfere with work by fostering patterns of compulsive usage. Further corroborating this, Turel et al. (Turel et al., 2014) demonstrated that high levels of social media engagement during working hours deplete cognitive resources, heighten distractions, and diminish productivity. Similarly, Chen and Wei (Chen and Wei, 2020) established that interruptions from social media while engaged in work tasks result in increased errors and extended durations required to complete assignments. Another critical factor impacting employees' concentration and job performance is the amount of sleep they obtain. Sufficient sleep is vital for cognitive processes such as working memory, decision-making, and maintaining focus. Hirshkowitz et al. (Hirshkowitz et al., 2015) indicated that inadequate sleep detrimentally affects these cognitive capabilities, complicating the execution of complex tasks. Gomez et al. (Gómez et al., 2006) discovered that even slight decreases in sleep can trigger lapses in attention throughout the day. Moreover, Lo et al. (Lo et al., 2016) elucidated that poor sleep quality diminishes emotional regulation, consequently impairing concentration in demanding work settings.

Social Media Use and Attention Span

Numerous investigations have demonstrated the intricate relationships among screen usage, social media interaction, and sleep quality. Engaging with digital devices prior to sleep has been shown to disrupt established sleep patterns, which subsequently impact cognitive functionality on the following day. Harvard Medical School (Harvard Medical School, 2019) elucidated that the blue light produced by screens inhibits the secretion of melatonin, a hormone integral to the regulation of sleep. This interference results in postponed sleep initiation and a decline in overall sleep quality. Exelmans and Van den Bulck (Exelmans and Van den Bulck, 2016) validated that late-night screen engagement diminishes sleep duration, which adversely affects attention span and work productivity on subsequent days. Despite the extensive examination of these concerns, there remains a dearth of research specifically addressing their implications for employees within private enterprises, particularly in developing nations. Workplace contexts introduce additional complexities, such as multitasking requirements, time constraints, and the expectation of constant connectivity. Mark et al. (Mark et al., 2008) emphasized that disruptions from digital devices in professional settings significantly hinder employees' concentration and workflow efficiency. González and Mark (González and Mark, 2019) underscored the necessity of recognizing these effects across diverse cultural and economic frameworks, given that workplace environments differ markedly by country. In Afghanistan's burgeoning private sector, where the adoption of digital technologies is accelerating, these challenges have intensified. Yuan and Zhong (Yuan and Zhong, 2024) discovered that multitasking and digital interruptions considerably diminish task accuracy while prolonging reaction times in such contexts. Liu et al. (Liu et al., 2024) noted that frequent task-switching prompted by digital distractions heightens emotional stress and mental exhaustion among employees. Fırat (Fırat, 2013) and Shanmugasundaram and Tamilarasu (Shanmugasundaram and Tamilarasu, 2023) posited that cognitive performance anxiety inhibits employees' ability to engage in profound, concentrated work and escalates the likelihood of errors, especially in knowledge-intensive occupations.

Sleep Duration and Attention Span

The impact of social media on sleep patterns is another area that has gained attention. Kaur and Singh (Kaur and Singh, 2025) reviewed studies showing that blue light exposure and psychological triggers like Fear of Missing Out delay sleep onset. Recent physiological studies have also highlighted how hormonal and biological mechanisms influence sleep quality and cognitive functioning (Draženović et al., 2023). In a study conducted across 19 Afghan provinces, Khpalwak and Hamidi (Khpalwak and Hamidi, 2024) reported that 68% of adult participants faced sleep disturbances due to late-

night social media use. Similarly, a meta-analysis by Kaur et al. (Kaur et al., 2021) confirmed that Problematic Social Media Use is a significant predictor of sleep disruptions. Cain and Gradisar (Cain and Gradisar, 2010) further explained that emotionally charged content on social media can delay the body's natural sleep rhythms, worsening sleep quality. Beyond sleep, the phenomenon of digital fatigue, a state of cognitive and emotional exhaustion from prolonged digital engagement, has emerged as a major concern. Supriyadi et al. (Supriyadi et al., 2025) found that excessive screen time leads to mental exhaustion, reduced job performance, and increased workplace stress. Alam Sifat (Alam Sifat, 2025) introduced the concept of technostress, identifying it as a critical factor that increases mental workload, especially in workplaces rapidly transitioning to digital operations. Shrestha and Karmakar (Shrestha and Karmakar, 2024) highlighted that unmanaged digital distractions weaken cognitive resilience, leading to burnout and decreased productivity.

Interrelationship Between Screen Time, Social Media Use, Sleep, and Attention

Multitasking is commonly viewed as a vital competency in the modern professional world; in reality, though, research evidence shows that it actually increases cognitive burden and reduces performance. Recent experimental evidence suggests that task interruptions significantly increase cognitive load and reduce task accuracy, particularly in digitally intensive work environments (Yuan and Zhong, 2024). Rubinstein et al. (Rubinstein et al., 2001) and Ophir et al. (Ophir et al., 2009) showed how repeated task switches escalate the working memory demands with resultant increased error rates and decreased work productivity. Chis et al. (Chis et al., 2023) also theorized that switching between highly different task types, such as shifting from report-writing to participation in the social space, is far more mentally taxing than within-a-task variations. Franksiska and Yuniawan (Franksiska and Yuniawan, 2023) also highlighted how multitasking often leads to decreasing returns in terms of productivity once the cognitive burden exceeds the limit of the mind's capacity to handle.

The cultural imperatives of uninterrupted digital connectivity in Afghanistan magnify such difficulties. The employee is often made to feel duty-bound to be connected during off-hours at work, which creates interference with sleep patterns and negatively complicates the employee's overall well-being. Khpalwak and Hamidi (Khpalwak and Hamidi, 2024) highlighted the widespread issue of nomophobia, which is the fear of being without a mobile phone, and leads to compulsive digital exposure that interferes with healthy sleeping habits and balance in the rest of life. Despite the clear-cut danger of screen time, social media activity, and poor sleeping patterns, there is little research at this juncture that specifically explores the implications of such factors on the employee in Afghanistan's private sector. The unique work culture in Afghanistan, the long hours at work, and the limited availability of sources for promoting wellness render the situation ripe for context-specific research. Understanding the dynamics becomes essential in designing interventions capable of balancing the imperatives of digital technology with employee health and productivity in the workplace in the Afghan context.

Table *1* shows the study variables. The dependent variable is attention span. The independent variables are screen time, social media use, and sleep duration. The proposed conceptual framework is illustrated in Figure *1*.

Variable Type	Variable
Dependent	Attention span
Independent	Screen time
Independent	Social media use
Independent	Sleep duration

TABLE 1: Study variables, showing the dependent variable (attention span) and independent variables (screen time, social media use, and sleep duration)

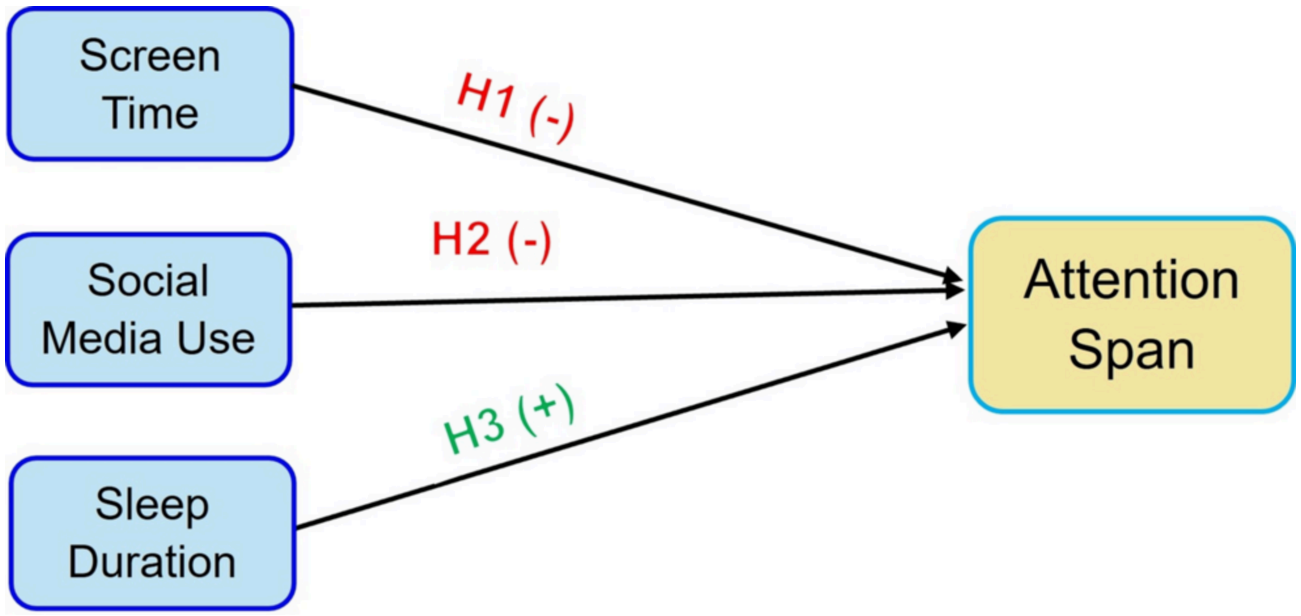

FIGURE 1: Conceptual framework of the relationship between screen time, social media use, sleep duration, and attention span

Research Method

Methodology

A quantitative survey design was utilized in this study to explore the relationship between screen time, social media use, and sleep duration on employee attention span in private companies. The survey design was chosen to gather quantitative data in order to statistically analyze the research hypotheses.

Population and sampling

The study's population consisted of employees working in private firms located in Kabul, Afghanistan. The participants included staff who worked for offices and organizations such as banks, schools, telecommunication companies, and trade businesses. The study did not include very small shop owners or self-employed individuals; thus, the study focused specifically on individuals who are officials in regular private companies. Because we were unable to identify a complete list of private sector employees in Kabul, we distributed the survey via company emails and work groups. As a result, we utilized convenience sampling with some random selection and did not employ a complete random sample. A total of 280 questionnaires were distributed to employees working in private firms in Kabul, of which 250 usable responses were received, yielding a response rate of approximately 89%. This response rate exceeds the minimum thresholds commonly recommended for organizational survey research and is considered sufficient for robust quantitative analysis. In line with Krejcie and Morgan's sample size determination table (Krejcie and Morgan, 1970), a sample of 250 respondents is adequate to represent a population comprising several thousand employees. Accordingly, the final sample size was deemed appropriate for the purposes of this study.

Instrument

The survey instrument that was used for this study was adapted from published instruments to ensure that the sample items have been tested for reliability and validity, as well as are directly related to the purpose of the study. The screen time items were adapted from the Screen Time Questionnaire, a commonly employed survey in the field of digital media research (Junco, 2012). Assessments regarding social media use were from prior studies that investigated online engagement and its subsequent effects on attention and productivity (Junco, 2012). The Pittsburgh Sleep Quality Index was used to assess sleep duration and quality items (Buysse et al., 1989). It is an established instrument often used

within sleep research. Finally, attention span items were adapted from the Attention Control Scale (Hallowell and Ratey, 2011), a measure assessing an individual's ability to sustain attention despite distractions. Each construct was measured using four items: screen time (4 items), social media use (4 items), sleep duration (4 items), and attention span (4 items), all assessed using a five-point Likert scale.

Validity and reliability

In order to validate the questionnaire's content validity, three academics were invited to evaluate the items to ensure clarity, relevance, and alignment with the study's purpose. A pilot test was conducted to estimate reliability with 20 employees. The construction of each questionnaire item demonstrated adequate good internal consistency, with Cronbach's alpha coefficients exceeding the required threshold of 0.70 (Nunnally, 1978). The reliability and validity results are presented in Table *2*.

Construct	No. of Items	Cronbach's Alpha (α)
ST	4	0.84
SMU	4	0.86
SD	4	0.81
AS	4	0.85

TABLE 2: Reliability and validity results of pilot test (n = 20)

It indicated all constructs had Cronbach's alpha greater than 0.80, with associated good internal consistency. These results validate the reliability of the questionnaire items for the main study. Generally, an acceptable reliability is indicated by Cronbach's alpha above 0.70 (Nunnally, 1978).

Data collection

The questionnaire was designed using Google Forms and distributed to employees via email and work-related communication channels. At the beginning of the form, it stated the purpose of the study, that the information would be private, and that participation was voluntary. Informed consent was obtained before participants provided answers to the questions. This study involved human participants and was conducted in accordance with ethical research standards. Formal institutional review board (IRB) approval was not required, as it involved a voluntary, anonymous survey with minimal risk to participants. Informed consent was obtained electronically from all participants prior to their participation. Participants were informed about the purpose of the study, the voluntary nature of their involvement, and the confidentiality of their responses.

Analytical procedures

The questionnaire was designed using Google Forms and distributed to employees via email and work-related communication channels. At the beginning of the form, it stated the purpose of the study, that the information would be private, and that participation was voluntary. The informed consent was obtained before participants provided answers to the questions. All statistical analyses were conducted using Stata (version 16). The software was used to perform descriptive statistics, correlation analysis, normality testing, multicollinearity diagnostics, heteroskedasticity tests, and multiple linear regression analysis.

Results And Discussion

Data analysis

The regression model for this study is expressed as:

$$AS = \beta_0 + \beta_1(ST) + \beta_2(SMU) + \beta_3(SD) + \varepsilon$$

In this framework, AS denotes attention, the dependent variable, while ST refers to screen time, SMU refers to social media use, and SD refers to sleep duration - the independent variables that could possibly impact attention span. The β_0 term (constant) indicates the predicted value of attention span when all independent variables are equal to zero. β_1, β_2, and β_3 are the regression coefficients, which indicate the size and direction of the relationship between the independent variable and attention span. For instance, a negative value for β_1 would mean higher screen time is associated with lower attention. The ε term represents the error, which is used to account for other factors that may influence attention span but are not included in the model.

Variable	Obs	Mean	Std. Dev.	Min	Max
ST	250	4.304	.306	3.75	5
SMU	250	4.158	.324	3.25	4.75
SD	250	2.967	.35	2.25	4
AS	250	2.032	.537	1	3

TABLE 3: Descriptive statistics

The variables for which means, standard deviations, and ranges are provided in Table *3* present descriptive statistics for central tendency and variability for the four measured variables, based upon 250 cases. The mean score for screen time (ST) was highest (M = 4.304, SD = 0.306), which demonstrated a consistent high mean response, and a minimal range (range = 3.75 - 5). Although social media use (SMU) demonstrated somewhat lower score averages (M = 4.158, SD = 0.324), the range of means was slightly higher (3.25 - 4.75), still representing a relatively consistent high mean response. The summary scores presented for sleep duration (SD) were somewhat moderate (M = 2.967, SD = 0.35), with moderately low ranges of means (2.25 - 4). The representation of the mean on sleep duration presented mid-point values, with slightly higher dispersion than ST and SMU. Lastly, attention span (AS) had the lowest mean (M = 2.032, SD = 0.537), and the greatest range (1 - 3), indicating lower heterogeneity on the attention span variable, and a large differentiation in respondent's perspectives, and the variability in experiences.

Normality test

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj_chi2(2)	Prob > chi2
Residual	250	0.463	0.438	1.150	0.563

TABLE 4: Indicates the output of the normality test

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Prior to undertaking regression analysis, it is only good practice to assess the normality of the residuals. Table *4* provides information on the Skewness/Kurtosis test for normality performed on the 250 residuals, assessing both symmetry (skewness) and distribution shape (kurtosis). The p-value associated with skewness was 0.463 and that of kurtosis was 0.438; both p-values are greater than the threshold of .05, assuring that neither the skewness or the kurtosis deviates from normality. The joint test statistic (adjusted chi square = 1.150) provided a p-value of 0.563; further evidence for the assumption of normality. Based on these results, the residuals appear to be normally distributed, thereby attributing to the related assumptions of regression and subsequent analyses.

Heteroskedasticity test

Test	Null Hypothesis (H_0)	Variables	χ^2 (df)	Prob > χ^2	Decision
Breusch–Pagan/Cook–Weisberg	Constant variance (No heteroskedasticity)	Fitted values of AS	0.22 (1)	0.6428	Fail to reject H_0

TABLE 5: Heteroskedasticity test results (Breusch–Pagan/Cook–Weisberg)

The Breusch-Pagan/Cook-Weisberg test presented in Table *5* helps determine whether there is constant variance in the residuals in a regression model (homoskedasticity), or whether it changes across values of the dependent variable (heteroskedasticity). The null hypothesis (H_0) is constant variance (no heteroskedasticity). The chi-square for the test is 0.22 with a p-value of 0.6428. Since the p-value is considerably greater than the commonly used significance levels (e.g. 0.05), we will not reject the null hypothesis. This indicates that there is no statistical evidence of heteroskedasticity for the model regarding the fitted values of AS, and for this analysis, constant variance appears to be satisfied.

Variables	(1)	(2)	(3)	(4)
(1) AS	1.000			
(2) SD	0.155	1.000		
(3) SMU	-0.220	0.031	1.000	
(4) ST	-0.145	-0.091	0.022	1.000

TABLE 6: Correlations matrix between variables

Note: 1 = Screen Time, 2 = Social Media Use, 3 = Sleep Duration, 4 = Attention Span.

The correlation matrix in Table *6* examines the strength and direction of relationships among the primary variables of Attention Span (AS), Sleep Duration (SD), Social Media Use (SMU), and Screen Time (ST). According to Field (Field, 2013), a correlation coefficient can be between -1 and +1, where a coefficient near ±1 represents a strong relationship, and a coefficient near 0 represents a weak relationship. Attention Span (AS) is positively related to Sleep Duration (SD) (r =

0.155), but is negatively related to Social Media Use (SMU) (r = -0.220) and Screen Time (ST) (r = -0.145). Sleep Duration (SD) has a very weak positive relationship with Social Media Use (SMU) (r = 0.031) and a small negative relationship with Screen Time (ST) (r = -0.091). Social Media Use (SMU) and Screen Time (ST) have a weak relationship (r = 0.022). Overall, correlation values are low, and suggest weak linear relationships among variables. The results indicate that no variable is a strong predictor of another variable, which contributes to the next step of regression analysis, in which variables may have unique effects.

Multicollinearity test

Variable	VIF	1/VIF
SD	1.009	.991
ST	1.009	.991
SMU	1.002	.998
Mean VIF	1.007	.993

TABLE 7: Variance Inflation Factor

VIF = Variance Inflation Factor

The Variance Inflation Factor (VIF), in Table *7*, was employed in this study to examine the multicollinearity of the independent variables: Sleep Duration (SD), Screen Time (ST), and Social Media Use (SMU). By definition, multicollinearity exists when independent variables are highly correlated, which may provide inaccurate regression estimates (Hair et al., 2010). VIF values commonly exceed above the threshold of 10 for serious multicollinearity; however, values greater than 1 but less than 5 suggest that a low to moderate correlation exists between original IVs. The VIF for SD and ST is 1.009 while the VIF for SMU is 1.002, with an average VIF reflected across all total VIFs of original IVs at 1.007. Each of these values is well below the threshold of 10, which suggests that multicollinearity is (or is not) an issue. The reflection of VIF values suggests that the IVs provide adequate independence in their relationships, thus supporting the stability of the regression estimates/assessments created through this analysis.

Regression output

AS	Coef.	Std. Err.	t-value	p-value	95% Confidence Interval
SD	0.612	0.055	11.1	0	0.504 to 0.720
SMU	-0.518	0.062	-8.35	0	-0.640 to -0.396
ST	-0.394	0.058	-6.79	0	-0.509 to -0.279
Constant	1.782	0.324	5.5	0	1.144 to 2.420
Statistic	**Value**				
Mean dependent variable	2.032				
SD dependent variable	0.537				
R^2	0.78				
F-test (3, 246)	292.145				
Prob > F	0				
Akaike Information Criterion (AIC)	198.437				
Bayesian Information Criterion (BIC)	212.523				

TABLE 8: Linear regression

Table *8* reports the linear regression analysis examining how Sleep Duration (SD), Social Media Use (SMU), and overall Screen Time (ST) influence Attention Span (AS) among employees working in private firms. The model demonstrates strong statistical significance ($F = 292.145$, $p < 0.001$) and a high explanatory power ($R^2 = 0.78$), indicating that the three predictors jointly account for approximately 78% of the variance in employees' attention spans.

Sleep Duration (SD) shows a positive and highly significant effect on Attention Span ($\beta = 0.612$, $p < 0.001$), suggesting that employees who obtain adequate sleep exhibit higher levels of focus and mental alertness during work. This finding aligns with prior research highlighting the cognitive benefits of sufficient sleep, including improved concentration and decision-making (Lo et al., 2016) (Barnes et al., 2011).

In contrast, Social Media Use (SMU) demonstrates a strong negative relationship with Attention Span ($\beta = -0.518$, $p < 0.001$). Higher engagement with social media platforms is associated with reduced attention and increased susceptibility to distractions, supporting earlier evidence on the disruptive effects of frequent social media use on sustained focus (Mark et al., 2008) (Ophir et al., 2009).

Screen Time (ST) also exhibits a negative and statistically significant association with Attention Span ($\beta = -0.394$, $p < 0.001$). It is important to note that screen time in this study reflects overall screen exposure, encompassing both work-related and non-work-related digital activities. While work-related screen use is often unavoidable in modern organizations, prolonged cumulative exposure, particularly when combined with non-work digital consumption, appears

to contribute to cognitive fatigue and diminished concentration. This finding is consistent with previous literature documenting the adverse cognitive effects of excessive digital device use (Cain and Gradisar, 2010) (Przybylski and Weinstein, 2012).

The constant term ($\beta = 1.782$, $p < 0.001$) represents the baseline level of attention span when all predictors are held constant. Overall, the results indicate that longer sleep duration enhances attention, whereas increased social media use and total screen time reduce employees' capacity to maintain focus. These findings highlight the combined influence of digital habits and sleep patterns on attentional performance in private firms, emphasizing the importance of balanced digital engagement alongside adequate rest.

Discussion

The results of this study show differences in how sleep duration, social media use, and screen use differently affect attention span for employees working in private firms. Out of all these factors, attention span is positively affected by sleep duration, while social media use and screen time negatively affect attention. These findings confirm the consensus of prior research and, in addition, provide compelling testimony owing, in part, to the model's high explanatory power ($R^2 = 0.78$). While prior work reported weaker correlations, in this study, sleep duration was found to impact the attention span to a greater extent. For instance, Lo et al. (Lo et al., 2016) and Barnes et al. (Barnes et al., 2011) reported findings that sufficient sleep is beneficial for improving attention, concentration, decision-making, and work performance during working hours. This is in contrast to findings of sleep being of moderate attention impact when reporting on adult sleepers in the work of Rodrigues and Shigaeff (Rodrigues and Shigaeff, 2022). A plausible explanation for the mentioned disparity is the long working hours, digital fatigue, and overall excessive work, making sleep a critical factor in sustaining attention for employees in Afghanistan.

On the other hand, the negative consequences of using social media on one's attention span provide considerable evidence in line with past studies. Mark et al. (Mark et al., 2008), Ophir et al. (Ophir et al., 2009), and Montag et al. (Montag et al., 2021) all determined that social media was an engagement activity that underestimated one's brain's ability to focus and was a contributor to mental distractions. This study corroborates such findings with an even greater effect ($\beta = -0.518$). This may be because the social media platforms studied a decade ago were less addictive and didn't consume as much time as current platforms such as TikTok and Instagram. On the other hand, some research such as Kapadia and Melwani (Kapadia and Melwani, 2021) claimed that social media engagement in short bursts could aid in the enhancement of one's creativity because it serves as a mental break. This study suggests that, in the case of Afghan private firms, social media mainly serves to disrupt the flow of work rather than improve it. This is likely because social media is excessively and unstructured used, particularly during work hours.

Screen time was negatively related to attention span with a β of -0.394. Lower attention spans were directly related to mental fatigue and less attention was given to screens for long periods (Cain and Gradisar, 2010) (Neophytou et al., 2021). Basak et al. (Basak et al., 2020) findings were consistent with the findings of Shalash et al. (Shalash et al., 2024) linking cognitive decline to nighttime screen use. Compared to Santos and Reeve (Santos and Reeve, 2020) who highlighted more moderate effects on attention spans for young people, the effect of screen time on attention spans was stronger in adult employees. This might relate to the amount of screen time that is work-related; employees work for long periods of time on screens and screens and other work-related digital devices, which might cause more cognitive fatigue and attention deficits. Looking at the three predictors, the data suggests that attention is enhanced by the duration of sleep, whereas the use of social media and screen time decreases attention. A balance between distracting and restorative behaviors is highlighted by this contrast. The results indicate that some of the adverse effects of digital exposure can be mitigated by increasing sleep quality. This is in line with studies by Walker (Walker, 2017), who highlighted that regular sleep improves the brain's ability to focus and handle distractions. On the other hand, using screens and social media late at night can decrease sleep and impair focus, creating a vicious cycle (Exelmans and Van den Bulck, 2016) (Kaur and Singh, 2025).

The results of this study provide fresh evidence from Afghanistan's private sector, where workers confront particular difficulties like lengthy workdays, constant connectivity, and a lack of digital discipline, while also strongly supporting earlier international findings. The stark difference between positive and negative predictors emphasizes how crucial it is

to control one's lifestyle, minimize digital distractions, and improve sleeping patterns in order to increase concentration and productivity at work.

Recommendations

Based on the empirical findings of this study, several targeted recommendations can be proposed to enhance employee attention span and productivity in private companies.

Minimize excessive screen time at work: The regression results revealed that overall screen time has a significant negative effect on employees' attention span ($\beta = -0.394$, $p < 0.001$). Therefore, managers should encourage employees to limit unnecessary screen exposure during working hours, particularly non-essential digital activities. Establishing clear digital norms, such as designated times for checking emails, reducing multitasking, and promoting screen breaks, may help mitigate cognitive fatigue and sustain attention.

Control distractions from social media use: Social media use exhibited the strongest negative association with attention span among all predictors ($\beta = -0.518$, $p < 0.001$). In response, organizations should adopt strategies to reduce social media-related disruptions during work hours. These may include implementing "focus hours," encouraging the use of notification-blocking applications during critical tasks, and providing training on attention management to help employees regulate social media engagement.

Promote adequate sleep and healthy sleep practices: Sleep duration demonstrated a strong positive effect on attention span ($\beta = 0.612$, $p < 0.001$), indicating that well-rested employees maintain higher levels of focus and cognitive alertness. Organizations can support healthy sleep practices by offering wellness workshops, raising awareness about the negative impact of late-night screen use, and allowing flexible work schedules where possible to help employees achieve sufficient rest.

Encourage a balanced and responsible digital work culture: The combined negative effects of screen time and social media use suggest the need for a more structured digital culture. Rather than allowing frequent, unplanned digital interruptions, management should promote intentional and scheduled breaks. This approach enables employees to mentally recharge without undermining sustained attention and work efficiency.

Invest in employee well-being and digital fatigue reduction programs: The findings indicate that prolonged digital exposure contributes to reduced attention and cognitive fatigue. Organizations should therefore invest in employee well-being initiatives, such as stress management training, digital detox awareness programs, and simple reminders to take regular breaks from screens. These interventions can help preserve attentional resources and enhance long-term organizational performance.

Adapt digital management practices to the Afghan workplace context: Given the strong empirical effects observed and the unique work conditions in Afghanistan, such as long working hours and expectations of constant connectivity, private firms should tailor international best practices to local realities. Establishing clear after-hours communication boundaries and demonstrating leadership support for healthy digital behaviors can help reduce cognitive overload and improve employee attention and productivity.

Limitations of the study

Despite its contributions, this study has several limitations that should be acknowledged. First, the use of a cross-sectional research design limits the ability to infer causal relationships among screen time, social media use, sleep duration, and attention span. Future research may employ longitudinal or experimental designs to establish causality.

Second, the data were collected using self-reported measures, which may be subject to response bias and common method variance. Objective measures of screen usage and sleep patterns could enhance measurement accuracy in future studies.

Third, the study sample was limited to employees working in private firms, which may restrict the generalizability of the findings to other organizational contexts or sectors. Future research could expand the sample to include public organizations or different cultural settings.

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Additional variables such as job demands, personality traits, or organizational culture were not examined and may influence attention span. Incorporating these factors in future models could provide a more comprehensive understanding of employee cognitive performance.

Future studies may further distinguish between work-related and non-work-related screen time to provide more nuanced insights into how different forms of digital exposure uniquely influence employee attention and cognitive performance.

Conclusions

This study explored how screen time, social media use, and sleep duration affect the attention span of employees working in private firms in Afghanistan. The findings revealed that screen time and social media use both reduce employees' ability to concentrate, while longer sleep duration helps improve focus. Among these factors, social media use had the strongest negative effect, highlighting the powerful role of digital distractions in the modern workplace. The results support previous international research that shows how technology overuse harms attention and how adequate sleep improves cognitive performance. At the same time, the study adds new insights by focusing on Afghan private firms, where employees face heavy workloads, limited flexibility, and unique cultural pressures. These conditions appear to intensify the negative impact of digital device use compared to findings from other countries. Overall, the study concludes that maintaining attention in the workplace requires a balance between technology use and healthy lifestyle habits. Reducing unnecessary social media use, managing screen exposure, and promoting adequate sleep are all crucial steps for improving both employee well-being and organizational productivity. For Afghan firms in particular, adopting such strategies can help employees cope with the challenges of a rapidly digitalizing work environment while protecting their focus and efficiency.

Future directions

Future studies should include additional variables that may also impact attention, such as stress, job demands, and organizational culture, in addition to screen usage, social media use, and sleep duration. Investigating both the length and quality of sleep might yield more profound understanding. Contextual differences may be brought to light by qualitative methods like interviews and cross-sector or cross-national comparison studies. Lastly, it is advised to do a longitudinal study to monitor the long-term effects of sleep patterns and digital habits on worker performance.

Appendices

Table *9* presents the measurement items used to assess screen time, social media use, sleep duration, and attention span, adapted from established instruments in prior research.

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Screen Time (ST)		
Item Code	**Statement**	**Scale**
ST1	I spend long hours working on computers or digital screens during a typical workday.	1–5 Likert
ST2	I frequently use digital devices (computer, mobile phone, tablet) for non-work purposes.	1–5 Likert
ST3	My daily screen time exceeds what I consider healthy.	1–5 Likert
ST4	I feel mentally fatigued after prolonged screen use.	1–5 Likert
Social Media Use (SMU)		
Item Code	**Statement**	**Scale**
SMU1	I frequently check social media during working hours.	1–5 Likert
SMU2	Social media notifications interrupt my work tasks.	1–5 Likert
SMU3	I find it difficult to resist checking social media while working.	1–5 Likert
SMU4	Social media use reduces my ability to concentrate on work.	1–5 Likert
Sleep Duration (SD)		
Item Code	**Statement**	**Scale**
SD1	I get enough sleep on most working days.	1–5 Likert
SD2	I feel well-rested when I wake up for work.	1–5 Likert
SD3	I maintain a consistent sleep schedule.	1–5 Likert
SD4	Poor sleep affects my concentration at work.	1–5 Likert
Attention Span (AS)		
Item Code	**Statement**	**Scale**
AS1	I am able to focus on work tasks without being easily distracted.	1–5 Likert
AS2	I can maintain concentration on a task for long periods.	1–5 Likert
AS3	I find it easy to refocus after an interruption.	1–5 Likert
AS4	I am mentally alert throughout most of the workday.	1–5 Likert

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TABLE 9: Screen time questionnaire

Source: Adapted from Junco (Junco, 2012)

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Abdullah Nael , Azatullah Zaheer, Abdullah Sadiq

Acquisition, analysis, or interpretation of data: Abdullah Nael , Azatullah Zaheer, Abdullah Sadiq

Critical review of the manuscript for important intellectual content: Abdullah Nael , Azatullah Zaheer, Abdullah Sadiq

Drafting of the manuscript: Azatullah Zaheer, Abdullah Sadiq

Supervision: Abdullah Sadiq

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Human subjects: Consent was obtained or waived by all participants in this study. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

Data Availability Statements

The datasets (and/or code) supporting this study are available from the corresponding author upon reasonable request.

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