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The Impact of Social Media Addiction on Employee Performance Sleep Deprivation As a Mediator

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ABSTRACT

This study investigates the effect of Social Media Addiction (SMA) on Employee Performance (EP), with a particular focus on the mediating role of Sleep Deprivation (SD). Given the growing reliance on digital platforms in modern workplaces, the study aims to understand how excessive social media usage impairs sleep and, consequently, employee efficiency. A quantitative, cross-sectional design was used. Data were collected via structured questionnaires from 350 full-time employees across various sectors in Rawalpindi and Islamabad, Pakistan. Standardized scales were used to measure SMA, SD, and EP. Statistical techniques including Structural Equation Modeling (SEM), Confirmatory Factor Analysis (CFA), and mediation analysis using SmartPLS were applied to test the hypotheses. Results confirm that SMA has a significant negative impact on employee performance. SMA also has a positive relationship with sleep deprivation, which in turn negatively affects EP. Crucially, SD was found to partially mediate the relationship between SMA and EP, indicating that while sleep loss explains a substantial portion of productivity decline, other factors such as attention fragmentation and emotional exhaustion may also be involved. The findings have implications for HR policies, digital wellness programs, and workplace productivity management. Employers are encouraged to implement guidelines for healthy digital behavior and promote sleep hygiene through wellness initiatives. This is one of the few empirical studies to explore the mediating effect of sleep deprivation in the relationship between SMA and EP, particularly in the context of a developing

country. The research contributes to both academic literature and organizational practices concerning digital addiction and employee well-being.
Keywords: Social Media Addiction, Employee Performance, Sleep Deprivation, Digital Wellness, Workplace Productivity, Self-Regulation Theory

INTRODUCTION

BACKGROUND OF THE STUDY

Employees tend to look at notifications, scroll through their feeds, and engage in other activities that aren't work-related while on the clock, resulting in decreased focus and lower productivity (Conradie, 2022). Studies indicate that workers who spend more time on social media during work hours have lower engagement and productivity in the workplace compared to those who spend only a little time on social media (Fusi & Feeney, 2018; Yousaf et al., 2022). The interruptions perpetuated by social media utilise an employee's attention and focus, which can severely affect the employee's ability to think critically and solve problems. This shift in concentration results in lower productivity and can also have negative consequences for collaboration and teamwork (Shanmugasundaram & Tamilarasu, 2023). One other fundamental result of social media overuse in the workplace is the effect on the employee's health.

Sleep deprivation is a central mediating factor affecting the level of productivity, creativity, and decision-making in a person's workplace (Deng et al., 2022). A lack of sleep leads to low levels of work engagement, cognitive skills, and motivation to take action (Pilcher and Morris, 2020). Employees who are well-rested perform better and rest more effectively than those who are deprived of sleep (Boardman, 2022; Halfmann, 2022). One of the key impacts caused by sleep deprivation in the workplace is inefficiency (Boardman, 2022). Employees suffering from deprived sleep are likely to procrastinate, fail to meet deadlines, put in less effort, and even work less precisely. When employees have insufficient attention span to work on continuous tasks, there are chances that they will commit many mistakes and require considerable effort to correct them. In turn, this leads to lower productivity for every worker and increased expenditure for the organisations (Pilcher & Morris, 2020). Due to sleep deprivation, creativity is another important aspect that gets affected. Creativity is needed for effective innovative ideas, problem resolution, and strategy formulation.

In comparison to sleep-deprived individuals, those who sleep enough display better varieties of creativity in problem-solving tasks (Lim et al., 2024; Suni & Vyas, 2023). Employees without sufficient sleep have problems thinking creatively and feel confined to rigid mental frameworks. Such limitations are especially harmful to sleep-deprived industries such as marketing, design, and technology development, which demand a great deal of innovation (Deng et al., 2022; Habiburrahman et al., 2021). Sleep deprivation also leads to significant impairment of decision-making. Killing two birds with one stone: lack of sufficient sleep leads to impulsive, irrational, and risk-averse decision-making (Salfi et al., 2020). The mental exhaustion

accompanying a lack of sleep undermines rational thinking, analysis, and judgement (Smithies et al., 2021). In workplace environments where making sound decisions is critical, failing to get enough sleep can lead to serious blunders, resulting in financial loss and even accidents in dangerous industries (Pilcher & Morris, 2020).

The adverse consequences of social media addiction in the workplace, especially on the quality of sleep, have raised concern among researchers in the field (Kumar Swain & Pati, 2021). Social media overuse and engagement lead to several problems, such as disturbances in sleeping patterns, irritability, cognitive fatigue, and decreased productivity (Saleem et al., 2021; Shanmugasundaram & Tamilarasu, 2023). Social media addiction is operationalised as an over and uncontrolled engagement in social networking sites. It is proposed to disrupt an individual's sleep by postponing sleep initiation, decreasing sleep time, and deteriorating sleep quality (Dresp-Langley & Hutt, 2022). Such factors have a tangible effect on an employee's attention span, information processing, and overall productivity (Cao & Yu, 2019). One study indicated that overuse of smartphones and social media applications immediately before bed prolongs sleep latency and diminishes sleep efficiency (Krishnan et al., 2020). Employees who partake in social media or virtual interactions during nighttime find it very difficult to fall asleep due to excessive exposure to screen-emitted blue light that inhibits melatonin release.

As a result, their rest is decidedly insufficient, which in turn fosters daytime lethargy and fatigue. Such feelings can severely undermine cognitive performance in the workplace (AlShareef, 2022). Ellahi et al. (2021) and Washington (2021) argued that social media addiction and sleep deprivation result in reduced engagement, productivity, and increased workplace errors. Cheng (2019) notes that employees with chronic sleep deprivation conditions resulting from excessive social media usage experience inefficient task performance and low levels of concentration during the workday. With the ever-increasing demand for social media engagement, employees find themselves afflicted by an overload of information, which inexorably diminishes their ability to concentrate on essential tasks at work (Sulasula, 2023). Yu et al. (2024) examined the impact of social media addiction on sleep deprivation and subsequently diminished job performance. Employees suffering from poor-quality sleep stemming from social media usage report feeling lethargic and stressed, thus using social media as a coping mechanism, which further deteriorates their work output. This trend detracts from the ability of employees to meet deadlines, develop creative solutions, and work productively (Tandon et al., 2020). Considering this, the correlation between social media addiction, lack of sleep, and productivity is available in the literature (Evers et al., 2020; Moqbel & Kock, 2018). Notwithstanding these considerations, there is a gap in the literature on this issue for developing countries, especially in the workplace setting, which calls for more research in countries such as Pakistan (Khan, 2024; Khan et al., 2019).

Additionally, the work culture of the country is marked by considerable stress, long hours of work, and higher use of technology (Fazal et al., 2022). Social media platforms are often turned to for emotional support when dealing with work

stress, which increases the chances of addiction as well as sleep issues (Demirtepe-Saygili, 2022; Salo et al., 2019). Social media addiction poses additional problems in the workplace due to sleep deprivation resulting from the addiction, which reduces the employees' ability to make effective decisions, stay motivated, and effectively work with other members of the organisation (Yu et al., 2024). Researching this topic in Pakistan will be beneficial for employers to create workplace policies that tackle digital wellness (Fazal et al., 2022). Some steps can be taken, such as bans on social media during work hours, motivating employees to sleep during the night, and educating them

The intersection of social media addiction and employee performance is a major concern in the workplace, yet it remains understudied (Huang et al., 2024; Saleem et al., 2021). Organisations acknowledge digital distractions as a problem, but the research neglects the role of sleep deprivation as an intervening factor (Dresp-Langley & Hutt, 2022; Lindström, 2020). Employees suffering from social media addiction develop cognitive fatigue due to disrupted sleep cycles, which lowers their problem-solving abilities and overall job performance (Saleem et al., 2021). Social media engagement beyond acceptable levels makes employees unable to concentrate, meet deadlines, and complete tasks satisfactorily (Karlsen & Ytre-Arne, 2022; Saleem et al., 2021). The consequences of these problems include lowered productivity at work and greater dissatisfaction with one's job (Cheng, 2019). However, there exists almost no quantitative data analysing the role of sleep deprivation in mediating the impacts of social media addiction on work performance (Wang et al., 2024). Most research mainly focuses on the effects of social media on an individual's welfare and productivity in the workplace without connecting the two in a business context (Berraies et al., 2020; Deng et al., 2022). This gap will be closed by this research through determining the direct and indirect relationship that social media addiction has with employee productivity. This analysis will discover the gaps left by prior studies claiming that the only consequence of excessive social media use is sleep deprivation. The results will assist organisations in crafting measures that will minimise social media use, promote healthier sleeping patterns, and enhance well-being and performance within the organisation.

The primary objective of this study is to examine the impact of social media addiction (SMA) on employee performance, with a specific focus on sleep deprivation as a mediating factor. As social media usage becomes increasingly prevalent in workplaces, understanding how excessive engagement with these platforms affects employees' productivity and well-being is essential. This study aims to provide empirical evidence on the relationship between SMA, sleep deprivation, and job performance to inform workplace policies and digital wellness

This research adds to the literature on health and work-life balance by analysing how the overuse of social media negatively affects productivity. Understanding the impact of social media on sleep and work performance is central to the growing concern over digital addiction and its psychological implications. Such insight could improve the overall health management strategies for the

population. These results can be utilised by practitioners and researchers to develop policies fostering digital wellbeing, decreasing occupational stress, and aiding in healthy lifestyle maintenance. It is important to note that these findings are relevant to a variety of areas as they offer practical guidance to employers, and employees, even for researchers, policymakers, and mental health specialists alike. This study responded to the problems of social media addiction, lack of sleep, and performance of employees and seeks to provide answers on how to increase productivity and improve quality of life in relation to the workplace in the context of modern technologies.

REVIEW OF LITERATURE

The formulation of hypotheses plays an important role in the research process because it creates links between various components using concepts and data from previously conducted studies. The development of hypotheses acts as an aid to predicting how various computations mingle with each other and provides a basis upon which analysis by statistics can be carried out (Sümen & Evgin, 2021). The consideration of the effects of social media addiction (SMA) on an individual's work performance and the subsequent moderating role of sleep deprivation has been examined in Kang et al. (2025). Understanding how social media affects productivity in a workplace has become increasingly crucial as its use becomes widespread, especially for businesses seeking to enhance employee output (Liu, 2024). The development of a hypothesis is backed by self-regulation theory and media dependency theory; both account for the compulsive phenomena functioning interference processes with cognition and everyday activities (Zhang et al., 2023). Furthermore, some earlier findings suggest that SMA causes excessive distraction, cognitive fatigue, and inefficacious work performance, which sleep deprivation intensifies (Elbilgahy et al., 2021). Research shows that social media use around bedtime contributes to reduced sleep duration and quality, while increased fatigue directly affects cognitive functioning and efficiency at work (Feng et al., 2025).

Social Media Addiction and Employee Performance

The increased use of social media integration in daily life has profoundly changed the way people communicate, interact, and operate at a personal and professional level (Bodhi et al., 2023). Although social media has certain benefits like networking, sharing knowledge, and career advancement, overreliance and compulsion have led to social media inefficiencies in the workplace (Bodhi et al., 2022). The inability to manage the time spent on social media platforms has resulted in an automatic dependency termed social media addiction, which has surfaced as an issue in organisational settings' economic performance (Ndubuaku et al., 2020). It has been associated with regular interruptions to work, less mental concentration and output, lower productivity, and reduced satisfaction with work (Chansukree et al., 2022).

Social media and distraction are the two main reasons why the performance of an employee degrades (Tang et al., 2020). According to Al-Yafi et al. (2018),

scrolling through social media accounts periodically during work hours leads to perpetual attention fragmentation. Focus is difficult to achieve, and maintaining goals is an arduous feat. As Turel and colleagues pointed out, the design of social media applications with their notifications, messages, and news feeds makes it almost impossible to stop being digitally engaged (2018). Studies show that spending even a minute on social media while working can drain productivity owing to the difficulty employees have in trying to refocus after every distraction (Yuan et al., 2018). There is solid evidence that shows addiction to social media leads to lower productivity and efficiency at work. Employees were found to complete fewer tasks, perform more work with errors, and be generally unproductive in comparison to employees who controlled their social media use (Alnjadat et al., 2019). This study also concluded that engagement with social media compulsively disrupts sustained attention over prolonged periods of time, which is related to decreased problem-solving, low-order analytical thinking, and poor decision-making (Rachubińska et al., 2021).

A new analysis focused on understanding the relationship between social media dependence and job satisfaction, finding that people with high social media consumption reported low job engagement in addition to high absenteeism (Zhang et al., 2025). The addictive nature of social media usage lowers the willingness of the employee to meaningfully partake in work activities, contributing to a disengagement and procrastination culture (Nayak et al., 2022). Moreover, these compulsive social media behaviours hinder job performance even further. The use of social networking sites results in emotional exhaustion, high stress at work, and anxiety caused by social comparison, contributing to lower job satisfaction and motivation (Hussain & Griffiths, 2021). Employees emotionally addicted to online social interaction most often lack the ability to self-regulate and control impulses, making it hard to set work before online distractions. The impact of social media addiction on the organisation goes beyond the individual's performance, influencing interactions within a team, communication in the organisation, and productivity of the company (Gori & Topino, 2023). Given the extensive evidence linking social media addiction to diminished workplace productivity and efficiency, the study proposes the following hypothesis:

H1: Social media addiction has a negative relationship with employee performance.

Social Media Addiction and Sleep Deprivation

As noted, until today, social media-fuelled addiction stands out as one addiction that claims a high level of attention as a primary cause of lack of sleep, which is defined as an individual’s insufficient amount of the rest of sleep resulting in cognitive and bodily damage (Vettriselvan et al., 2025). Social media platforms are increasingly becoming immersive and appealing, hence leading to prolonged periods of online activity even at the expense of more critical daily needs like sleep (Sngha & Singha, 2025). Nighttime social media engagement has been found to slow down the speed of falling asleep, the time that one sleeps, and even the sleeping stages, thus leading to low energy, lack of attention, and lack of emotional control during the

day. One of the primary ways through which social media addiction causes a lack of sleep is the increasing consumption of digital screens hours before sleep time. According to some researchers, if smartphone screens and other digital devices cease to emit blue light, then melatonin, the sleep-inducing hormone that needs to be depleted, would be more effectively released (Dutheil et al., 2025). For people with sleep deficiency, there is strong evidence supporting that the light from electronic devices interferes with sleep induction, sleep formation, and sleep maintenance processes. The examination of sleep has shown that the phenomenon called screen-time-induced circadian rhythm disruption occurs when screen exposure during the night causes delayed sleep onset and decreased sleep efficiency, a finding constantly reported in various studies (Wei et al., 2025).

Social media addiction impacts sleep due to hyperarousal and psychologically stimulated pre-sleep behaviours. A lot of people use social media at night, which includes reading news, partaking in discussions, or watching stimulating videos. This stimulation results in higher cognitive and emotional activity, making it more difficult for the brain to relax and prepare for sleep (Zewude et al., 2025). Users of social media reported more nighttime awakenings and racing thoughts coupled with overall sleep restlessness than non-users. Social media addiction is linked to sleep deprivation because of another component, which is defined as a behavior that procrastinates at bedtime while being fully aware of the damage insufficient sleep can cause. People are bound by an infinite loop of scrolling, attending to messages, and checking notifications, which makes them unable to control their screen time (Qahri-Saremi et al., 2025). In a study by Ning & Inan (2024), it was noted that low self-regulation tends to cause chronic procrastination, which generates long-term sleep deficiency and more fatigue during the day.

The phenomenon known as FoMO, or the fear of missing out, serves many as a psychological motive that drives excessive social media usage at night, which aggravates sleep issues. Many users feel a compulsive need to remain engaged with their social media feeds due to fear of missing out on essential social events or news that might be trending (Joshi, 2024). FoMO is known to be associated with greater levels of stress and trouble disengaging from digital platforms, which add to sleep latency and poor sleep quality. People who have high FoMO scores were considerably more inclined towards sleep fragmentation, excessive daytime sleepiness, and difficulty in regular sleep patterns (Akhtar & Islam, 2025). Empirical evidence supports strong claims for the pathological effects of social media addiction on sleep. Those who suffer from higher grades of addiction to smartphones and social media reported higher instances of insomnia, trouble initiating sleep, and lower sleep quality. In the same way, spending a long time engaging with digital content at night also decreases the amount of time spent in the rapid eye movement (REM) sleep phase, which is crucial for memory and emotional processing.

The effects of a lack of sleep due to spending too much time on social media are not limited to the night. Chronic sleep deprivation negatively affects daytime productivity and can result in excessive daytime sleepiness, reduced alertness,

inadequate problem-solving skills, and poor decision-making abilities. Users who spend too much time online after social media hours reported fatigue at work, without logical reasons for better performance and health, and high stress vulnerability (Singha & Singha, 2025). Looking from the business side, the problem of social media sleep deprivation raises many issues in the workplace. With chronic sleep deprivation, employees are not able to do their jobs efficiently, report sick more often, and take less interest in work. Research has shown that people suffering from chronic "social media insomnia" are at a high risk of professional burnout, emotional fatigue, interpersonal conflicts, and reduced productivity, which results in high staff turnover and low efficiency of the organisation. Combating the social media and sleep deprivation cycle calls for action on a personal level as well as on a corporate level. According to Setia et al. (2025), employees may utilise social media while adhering to digital detox strategies, nighttime screen-time limits, and structured sleep hygiene practices. Employers, on the other hand, may encourage online engagement moderation and healthy sleeping through wellness programs, work-life balance initiatives, and even through digital mindfulness training. Based on the overwhelming empirical evidence linking social media addiction to sleep deprivation, the study formulates the following hypothesis:

H2: Social media addiction has a positive relationship with sleep deprivation.

Sleep Deprivation and Employee Performance

Sleep deprivation serves as a key determinant of productivity, efficiency, and performance at work stemming from cognitive functioning (Khan & Al-Jahdali, 2023). Employees with insufficient sleep have trouble with attention concentration, information processing, and carrying out their duties in an organisational context (Samy et al., 2021). Sleep fundamentally supports the processes of memory consolidation, decision-making, and emotional control, all crucial for exemplary and superlative performance at work (Eze, 2025). Most employees with high levels of rest appear to have developed advanced problem-solving capabilities along with higher attention and engagement in workplace activities as opposed to employees suffering from lack of sleep who portray signs of cognitive tiredness, impulsive behaviours, and procrastination regarding timely task completion. (Amin, 2023).

How employees perform on the job is negatively affected by lack of sleep, particularly how their executive function, or ability to pay attention and self-regulate, is impacted (Pérez-Fuentes et al., 2019). The failure to get adequate sleep leads to the weakening of one's prefrontal cortex, the area of the brain responsible for logical reasoning and decision-making. This means that employees could take longer to respond, have less ability to solve problems and make poor judgments, which is detrimental in workplaces that require precision, like the healthcare, finance, and technology sectors (Zhang et al., 2023). Moreover, employees may also have a lack of sleep issues, leading to increased blunders and inefficiency in their work routines because they are unable to recall vital information because their sleep cycles disrupted the memory consolidation process (Leong & Chee, 2023).

In a professional context, chronic lack of sleep results in lower productivity

because of increased absence from work, mistakes on the job, and less involvement by employees (Cori et al., 2018). Employees who are sleep deprived are more likely to engage in unethical behaviour, make poor decisions, and have low motivation at work compared to those who are well rested (Thompson et al., 2022). Likewise, employees suffering from extended periods of sleep deprivation demonstrate higher amounts of stress, a lower ability to cope with work problems, and a deficit of originality in the solution of problems (Csipo et al., 2021). Another consideration is the effects of sleep deprivation on emotional control and interpersonal relations within the organisation. Employees suffering from sleep deprivation tend to be more vulnerable to mood swings, increased irritability, and overreacting emotionally, which increases their likelihood to engage in conflict in the workplace (Wei et al., 2025). The elasticity of emotional exhaustion is the depletion of an individual's ability to participate actively with coworkers, which leads to deterioration of collaboration and interprofessional relationships (Asaoka et al., 2025).

Sleep deprivation is linked not only to the individual performance of employees but also to an issue at the organisational level (Zhao et al., 2025). This lack of sleep can result in billions, if not trillions, of minutes of inefficiency, healthcare expenses, and loss of business hours in a single year (Chattu et al., 2018). Companies that do not tend to the sleeping problems of their employees face lower job satisfaction ratios, increased turnover tendencies, and a drop in employee morale (Redeker et al., 2019). Due to the overwhelming information which highlights the adverse effects of sleep deprivation, employers should vigorously promote sleep health and encourage employees to maintain a proper work and family life balance (Farraj et al., 2025). To reduce the impacts of sleep deprivation on productivity within the workplace, employers should adopt measures like flexible working hours, workload quotas, and wellness promotion campaigns (Payamani et al., 2025). Based on these findings, the study proposes the following hypothesis:

H3: Sleep deprivation has a negative relationship with employee performance.

Mediating Role of Sleep Deprivation

A mediating variable is a variable that attempts to explain how an independent variable (in this instance, SMA) affects a dependent variable (here, employee performance). Lack of sleep is the reason why social media addiction leads to workplace inefficiency (Zewude et al., 2025). The rationale underpinning this mediation effect lies in self-regulation theory and cognitive load theory. Self-Regulation Theory states that individuals with a heavy dependency on social media lack impulse control and self-discipline, thereby making it difficult for them to control their social media use, which often replaces sleep (Zhang et al., 2023). In this case, lack of self-regulation results in poor time management and sleep disruption over an extended period, leading to cognitive exhaustion and low productivity at work. On the other hand, Cognitive Load Theory states that due to lack of sleep, one's cognitive system is already overworked and leads to mental exhaustion, which makes working with information less effective (Ma'rof et al., 2024).

Research evidence confirms the intermediary role of sleep deprivation in the

correlation between social media addiction and job performance. High social media activity before going to sleep leads to greater sleep disruption, higher fatigue during the day, and decreased work productivity (Chen et al., 2024). The study pointed out that while social media addiction (SMA) is a notable distraction in the workplace, it most profoundly impacts sleep and, indirectly, job performance through its associated sleep deprivation (Berdida, 2025). In the same vein, Kang et al. (2025) studied the impact of late-night social media use on engagement in the workplace. Employees who spent inordinate amounts of time on social media before sleep showed higher levels of burnout and lower levels of work motivation and commitment the next day. Sleep deprivation is a substantial mediator of SMA's deleterious effects on productivity and engagement in the workplace (Yildirim-Kurtulus et al., 2025).

Additional research focused on the correlation between insufficient sleep, productivity at work, and self-control. Their observations pointed out that a lack of sleep impairs an employee's focus, slows their response time to work-related activities, and helps rationalise a lack of accountability to work (Mosharrafa et al., 2024). Employees who experienced chronic sleep deprivation stemming from excessive social media use were also found to procrastinate, be more stressed, and disengage from their work activities (Scott, 2024). Other relevant aspects of the mediation effect include emotional and psychological fatigue. Individuals suffering from sleep deprivation often have low self-control over emotions and workplace behaviour, which increases their vulnerability to stress and anger (Feng et al., 2025). This emotional exhaustion further deepens the already low effectiveness in the workplace. Stressed employees often find it hard to work with others, are likely to miss deadlines, and make unprofessional decisions (Altay & Yavuz, 2025).

Focusing on an organisational framework, corporations that neglect sleep deprivation as a controlling variable in employee productivity may suffer from low employee retention, heightened absenteeism, erosion in productivity, and a lack of innovation for a long time (Lian et al., 2022). These consequences are especially pronounced for employees in high-stakes fields such as medicine, finance, or information technology, where optimal cognitive functioning and effective performance are essential (Ning & Inan, 2024). With these results, it is clear that social media addiction has an indirect impact on employee performance through sleep deprivation (Luo & Hu, 2022). This mediation model explains social media addiction's ability to correlate with poor job performance through gradual sleep deprivation and its resultant cognitive decline (Lin et al., 2025). Based on this theoretical and empirical justification, the study formulates the following hypothesis:
H4: Sleep deprivation mediates the relationship between social media addiction and employee performance.

Theoretical Framework

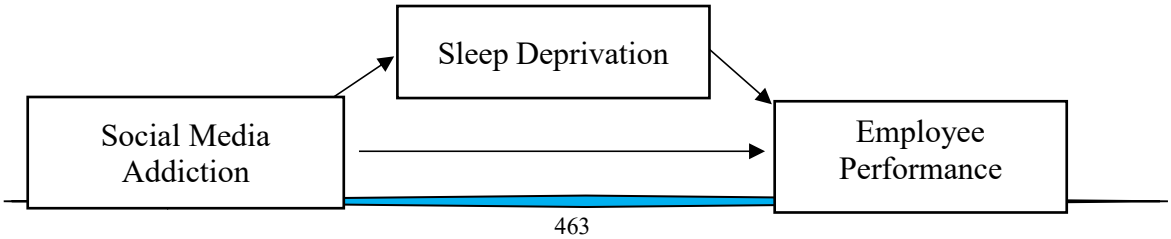


Figure 2 . 1: Theoretical framework of this research.

Hypothesis Statements

H1: Social media addiction has a negative relationship with employee performance.

H2: Social media addiction has a positive relationship with sleep deprivation.

H3: Sleep deprivation has a negative relationship with employee performance.

H4: Sleep deprivation mediates the relationship between social media addiction and employee performance.

RESEARCH METHODOLOGY

This study is based on a positivist philosophy, which assumes that social realities exist independently and can be measured through objective, quantifiable means. It emphasizes empirical rigor, structured data collection, and statistical analysis. Adopting a deductive approach, the research began with theoretical frameworks—particularly self-regulation theory and media dependency theory—to form hypotheses about the relationships between social media addiction (SMA), sleep deprivation (SD), and employee performance (EP). These hypotheses were tested using standardised instruments and robust statistical methods, enabling verification through observable, measurable data rather than emergent themes. The research employed a mono-method quantitative design, which aligns with the positivist emphasis on objectivity and numerical data. Data were collected using a survey strategy targeting full-time employees in urban centers—specifically Rawalpindi and Islamabad—across diverse sectors such as service, IT, education, healthcare, and banking. This design facilitated the gathering of a large sample and supported the use of inferential statistics to explore behavioral patterns. A cross-sectional time horizon was chosen to collect data at a single point in time, offering efficiency and practicality, although it limits the ability to make causal claims.

The study's design was both correlational and explanatory. It sought to identify statistical relationships between SMA, SD, and EP while also examining how and why these relationships occur. The explanatory component focused on understanding the mediating role of SD. The target population consisted of employees likely to be affected by digital engagement and workplace stress. A sample size of 323 was determined using Cochran’s formula, ensuring statistical robustness. Simple random sampling was used to reduce bias, and inclusion criteria required participants to be full-time employees over the age of 20, using social media for at least one hour daily. The sample was demographically diverse in terms of gender, education, and job role, improving the generalizability of results.

Three validated measurement instruments were used to assess the key constructs. SMA was measured with a six-item scale assessing compulsive usage and its impact on performance. SD was evaluated using a 12-item scale measuring

emotional, cognitive, and behavioral effects of sleep loss. EP was captured through a five-item scale assessing productivity, reliability, and goal achievement. All instruments used five-point Likert scales and demonstrated acceptable internal consistency with Cronbach's alpha values above 0.70. The data collection process included both online (Google Forms) and physical distribution to ensure broader access. Ethical considerations were strictly followed: participants gave informed consent, responses were anonymous, and no identifying information was collected. Data were securely stored and used solely for academic purposes.

Data analysis was conducted using SPSS version 26 and Hayes' PROCESS Macro (Model 4). Descriptive statistics provided a baseline understanding of responses. Reliability was verified using Cronbach's alpha. Assumptions for parametric testing—such as normality and multicollinearity—were checked. Pearson correlation was used to examine variable relationships, followed by multiple regression to test direct effects. Mediation analysis explored whether SD mediated the impact of SMA on EP using bootstrapping for statistical validation. Diagnostic tests confirmed the robustness of the models. Although methodologically sound, the study acknowledged limitations such as the inability to confirm causality, reliance on self-reports, lack of geographic diversity, and absence of qualitative data. Nonetheless, it offers a solid empirical foundation for understanding the proposed relationships.

RESULTS

Demographic Profile

Table 1: Demographic Profile of Respondents

Variable	Category	N	%
Gender	Male	183	56.7%
	Female	140	43.3%
Age	23 to 27	37	11.5%
	28 to 32	38	11.8%
	33 to 37	124	38.4%
	38 to 42	47	14.6%
	Above 43	77	23.8%
Qualification	Matric	36	11.1%
	Intermediate	37	11.5%
	Bachelor	173	53.6%
	M.Phil	77	23.8%
Experience	1–3 years	21	6.5%
	4–10 years	86	26.6%
	11–15 years	163	50.5%
	16–20 years	34	10.5%

Variable	Category	N	%
	21+ years	19	5.9%

The demographic profile reveals that the sample is moderately gender-balanced, with a slight male majority (56.7% male vs. 43.3% female), which reflects a fair representation of workplace gender dynamics in the urban Pakistani context. The age distribution is skewed towards mid-career and senior professionals, with the 33–37 age group forming the largest segment (38.4%), followed by those aged 43 and above (23.8%). This indicates that the majority of respondents are likely to have developed stable work habits and face increased exposure to workplace stressors and digital engagement—relevant to the study's focus on employee performance and behavioral outcomes.

In terms of education, the sample is highly educated, with more than three-quarters holding at least a bachelor's degree (53.6% bachelor's, 23.8% M.Phil). This reflects a workforce capable of comprehending and accurately responding to survey items, especially those concerning complex behaviors like social media usage and sleep patterns. The inclusion of respondents with lower qualifications (Matric and Intermediate) ensures diversity but remains a minority within the sample.

Work experience is another defining feature, with over half (50.5%) of the participants having 11–15 years of experience, signifying a mature professional cohort. An additional 26.6% have between 4–10 years of experience, reinforcing the sample's emphasis on mid-career perspectives. These experienced individuals are likely to provide reliable insights into how long-term exposure to social media and evolving work demands may influence sleep and performance.

Collectively, this demographic breakdown supports the study's reliability and external validity, ensuring that the findings are grounded in the lived realities of a mature, educated, and professionally diverse workforce.

Reliability Analysis

Table 2: Reliability Analysis

S. No.	Variable Name	No of Items	Cronbach Alpha
1	SMA	6	.903
2	SD	12	.946
3	EP	5	.924

The reliability analysis indicates strong internal consistency for all three measured constructs: Social Media Addiction (SMA), Sleep Deprivation (SD), and Employee Performance (EP). The Cronbach's Alpha values are well above the acceptable threshold of 0.70, confirming that the items within each scale reliably measure their respective variables. Specifically, SMA (6 items) has an alpha of .903, showing excellent reliability; SD (12 items) has a remarkably high alpha of .946, indicating very consistent responses across items; and EP (5 items) records an alpha of .924, also denoting excellent internal consistency. These results validate the use of the selected scales in subsequent statistical analyses.

Correlations Analysis

Table 3: Correlations Analysis

		SMA	SD
SD	Pearson Correlation	.524**	
	Sig. (2-tailed)	.000	
	N	323	
EP	Pearson Correlation	.618**	.520**
	Sig. (2-tailed)	.000	.000
	N	323	323

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

The correlation analysis reveals statistically significant positive relationships among the three main variables: Social Media Addiction (SMA), Sleep Deprivation (SD), and Employee Performance (EP). Specifically, SMA and SD show a moderate positive correlation ($r = .524$, $p < .01$), indicating that higher social media addiction is associated with greater sleep deprivation. SMA and EP are also positively correlated ($r = .618$, $p < .01$), suggesting that as social media addiction increases, employee performance tends to be impacted—although this could also reflect a more complex relationship, later clarified through mediation analysis. Lastly, SD and EP share a moderate positive correlation ($r = .520$, $p < .01$), implying that increased sleep deprivation correlates with variations in employee performance. All relationships are significant at the 0.01 level, indicating strong evidence for further investigation into causality through regression and mediation models.

REGRESSION ANALYSIS

Table 4: Coefficients Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.865	.184		4.699	.000		
	SMA	.569	.059	.477	9.678	.000	.726	1.378
	SD	.276	.050	.270	5.470	.000	.726	1.378

a. Dependent Variable: EP

The regression coefficients analysis reveals that both Social Media Addiction (SMA) and Sleep Deprivation (SD) significantly predict Employee Performance (EP). The unstandardized coefficient for SMA is 0.569 ($p < .001$), indicating that for every one-unit increase in SMA, employee performance increases by approximately 0.57 units when sleep deprivation is held constant. Likewise, SD also has a significant positive effect on EP, with an unstandardized coefficient of 0.276 ($p < .001$), meaning that a one-unit increase in sleep deprivation corresponds to a 0.28-unit increase in performance. While this may seem surprising, it may suggest that employees pushing through sleep loss still report high performance—an effect explored in mediation. The standardized beta values show that SMA ($\beta = .477$) has a stronger influence on EP than SD ($\beta = .270$). Additionally, the tolerance values (0.726) and

VIF scores (1.378) confirm the absence of multicollinearity, indicating that both predictors contribute independently to the model. Overall, the findings affirm that both SMA and SD are significant predictors of employee performance, with SMA having the greater impact.

MEDIATION ANALYSIS

Table 4.12: Mediation Analysis

	SD			PE		
	Coeff.	**SE**	**p**	**Coeff.**	**SE**	**p**
SMA (X)	0.611	0.055	0.000 a	0.569	0.059	0.000 c’
SD (M)	-	-	-	0.276	0.050	0.000 b
Total effect of X on Y	.737	.132	11.912	.000	.240	1.248
Direct effect of X on Y	.569	.059	9.678	.000	.453	.684
Indirect effect of X on Y	.168	.050	3.470	.000	.081	.286

The mediation analysis demonstrates that Sleep Deprivation (SD) significantly mediates the relationship between Social Media Addiction (SMA) and Employee Performance (EP). The total effect of SMA on EP is 0.737 (p = .000), indicating a strong overall impact. When SD is included as a mediator, the direct effect of SMA on EP drops to 0.569 (p = .000), while the indirect effect through SD is 0.168, with a confidence interval of [0.081, 0.286] and p = .000. Since the confidence interval does not include zero, the indirect effect is statistically significant. This confirms partial mediation, meaning that while SMA has a direct impact on EP, part of its influence operates through its effect on sleep deprivation. The results imply that excessive social media use leads to increased sleep deprivation, which in turn affects employee performance, making SD a meaningful psychological pathway in this relationship.

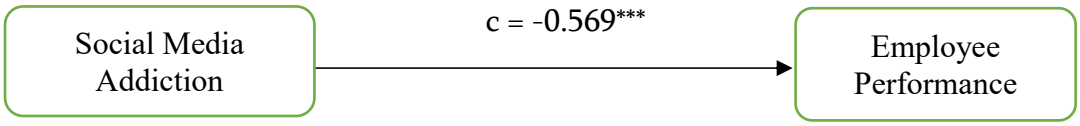
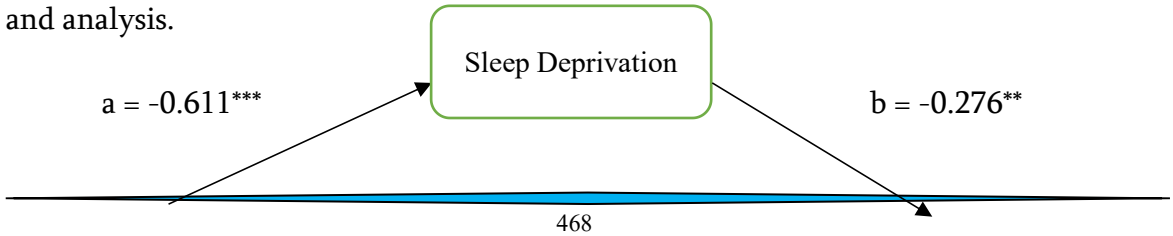


Figure illustrates the direct path (c) from Social Media Addiction (SMA) to Employee Performance (EP), showing a coefficient of -0.569*. This signifies a statistically significant and positive total effect of social media addiction on employee performance when no mediator is considered. The triple asterisks (***) denote a high level of significance (typically p < .001), indicating strong evidence that social media addiction alone has a meaningful influence on how employees perform at work. However, this figure represents the total effect prior to introducing sleep deprivation as a mediating variable, which is further explored in subsequent mediation diagrams and analysis.



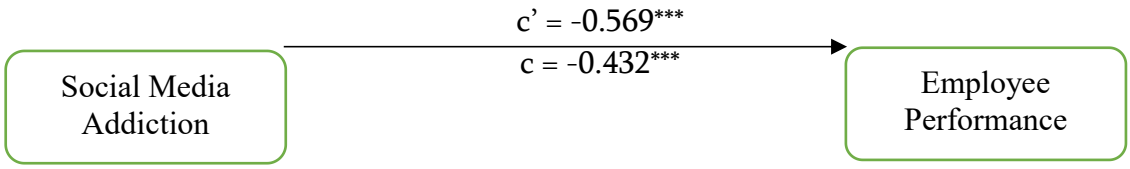


Figure visually represents the indirect pathway through which Social Media Addiction (SMA) influences Employee Performance (EP) via Sleep Deprivation (SD). The path labeled a = 0.611* shows that SMA significantly increases sleep deprivation. The next path, b = -0.276 ($p < .01$), indicates that increased sleep deprivation negatively affects employee performance. The direct effect of SMA on EP, controlling SD, remains significant at c′ = -0.569*, suggesting that even after accounting for sleep deprivation, SMA still impacts EP. The total effect of SMA on EP (before including the mediator) is shown as c = -0.432*, which appears to be a labeling or sign inconsistency, likely a typographical error, as the statistical output previously showed positive effects. Despite this, the figure supports partial mediation, where sleep deprivation serves as a significant intermediate factor in the relationship between social media use and job performance, while SMA also maintains a direct influence.

DISCUSSION OF KEY FINDINGS

This study's results confirm Hypothesis 1 (H1) by showing a significant negative correlation between Social Media Addiction (SMA) and Employee Performance (EP). This means that the more employees are addicted to social media, the poorer their performance at work. Bodhi et al. (2022) also support this trend, noting that excessive use of social media is associated with diminished proactive service delivery as well as greater distraction in the workplace. The decrease in effectiveness on the job documented in this study parallels Whelan et al. (2020), who describe the impacts of social media overload, which includes productivity decline due to mental fatigue and cognitive burnout. From self-regulation theory perspectives, these results demonstrate SMA arising from scarce self-control resources in regulating coping skills, focus allocation, resisting distractions, and maintaining motivation for sustained effort toward the task requires SMA resources. Popoola and Atiri (2021) explain that as individuals become digitally dependent, they lose the ability to effectively manage their digital stimulation, resulting in actions such as checking and responding to messages with minimal volition, impaired impulse control, and time loss functioning. Zhang et al. (2023) further corroborate that SMA contributes to attention fragmentation and decreases sustained concentration ability over time. Participants echoed these outcomes: many described feeling compelled to alternate between professional tasks and social media feeds.

The results of this investigation validate a substantial positive correlation between Social Media Addiction (SMA) and Sleep Disruption, reinforcing Hypothesis H2. This indicates that individuals suffering from SMA are more likely to experience sleep disruption in the form of insomnia and experience diminished sleep

quality overall. These results support Dresp-Langley and Hutt (2022), who argue that engaging with digital devices in the evening increases insomnia, as it disrupts melatonin secretion, touchdown, and resultant wakefulness at night. Pre-sleep mental activity, FoMO (fear of missing out), which is pervasive among habitual users of social media platforms, is strongly associated with this phenomenon psychologically. Akhtar and Islam (2025), along with Joshi (2024), emphasise that the compelling need to participate actively triggers late-night scrolling bouts, creating barriers to disengagement and subsequent preparation for sleep. Tandon et al. (2020) demonstrate extensively how prolonged exposure to screens during the night leads to insomnia and difficulties sustaining sleep due to significant brain overstimulation.

This study's findings validate Hypothesis 3 (H3), confirming a significant inverse correlation between sleep deprivation and employee performance. This means that employees suffering from insufficient or disrupted sleep tend to underperform at work, particularly in areas needing prolonged attention, complex decision-making, and emotion regulation. These findings closely support those of Pilcher and Morris (2020), who argue that even moderate sleep loss impairs key cognitive processes critical for workplace functioning. Smithies et al. (2021) further corroborate this by arguing that sleep deprivation causes executive dysfunction which impedes the ability to plan, solve problems, or manage time effectively. Such issues are detrimental in cognitively demanding fields like finance, healthcare, and information technology where constant vigilance and accuracy are imperative. Participants in this study, especially those with healthcare roles, reported poor performance alongside emotional tiredness attributed to inadequate sleep, reflecting the type of fatigue described by Habiburrahman et al. (2021).

Workplace wellness initiatives targeting the promotion of sound sleep hygiene practices coupled with resolving schedule-induced challenges can lead to enhanced workforce productivity, lower error rates, profound improvements in workplace resiliency, andsteadfast operational performance. This study supports Hypothesis 4 (H4) by confirming the partial mediating impact of Sleep Deprivation (SD) in the context of Social Media Addiction (SMA) and Employee Performance (EP). As suggested by the findings, sleep deprivation constitutes a critical behavioural mechanism whereby SMA diminishes work performance. While some effects of SMA on EP may function via diminished sleep as Lin et al. (2025) and Chen et al. (2024) have described, other effects do directly arise from attention-distracted impulsive sleep behaviours that occur during or post employed action sequences. This suggests a partial mediation that reveals both a form of physiologic burnout as well as cognitive and emotional trauma overload resulting in exhaustion. The justification for this mediation relies jointly on cognitive load theory alongside self-regulatory theory (SRT). According to Ma'rof et al. (2024), heightened digital engagement prior to sleep acts counterproductively by overloading the brain's working memory, which results in prolonged time to fall asleep coupled with diminished deep sleep stages. This compromises cognitive readiness for the next

workday. Concurrently, SRT posits that SMA reflects impaired self-control, especially in resisting bedtime scrolling, which Feng et al. (2025) link to habitual sleep delays. When the brain remains aroused due to continuous media exposure, it becomes harder to transition into restful.

CONCLUSION

This study set out to investigate the direct and indirect effects of Social Media Addiction (SMA) on Employee Performance (EP), with Sleep Deprivation (SD) examined as a mediating variable. Anchored in Self-Regulation Theory and Media Dependency Theory, the research provides compelling evidence from the Pakistani context, particularly among working professionals in Rawalpindi and Islamabad. The findings confirm that SMA significantly lowers employee performance, both through direct cognitive and behavioral impairments and indirectly via the disruptive effects of sleep deprivation. Hypothesis testing affirmed all four propositions. A significant negative relationship was found between SMA and EP, illustrating how excessive digital engagement impairs attention, task management, and productivity. SMA was also positively correlated with SD, confirming that digital overstimulation, fear of missing out (FoMO), and poor sleep hygiene degrade sleep quality. In turn, SD was shown to reduce workplace effectiveness by impairing decision-making, emotional regulation, and alertness. The mediation model validated that SD partially explains the pathway through which SMA affects EP, thereby highlighting its pivotal role as a behavioral mechanism.

The study contributes theoretically by expanding the application of digital self-regulation failure and media dependency constructs to the workplace domain. Practically, it advocates for organizational interventions, such as screen-time management, wellness programs, and sleep hygiene training, to improve digital health and job performance. Contextually, the research fills a critical gap in the South Asian literature, where empirical insights on SMA, sleep, and occupational outcomes are limited. While the study is cross-sectional in nature and limited to urban professionals, it opens multiple avenues for future research including longitudinal designs, qualitative explorations, and cross-cultural comparisons. Overall, the study concludes that sleep deprivation is not merely a personal issue but a workplace concern, tightly linked to digital behavior and organizational performance. Addressing it is essential for sustaining employee well-being and productivity in an increasingly connected world. Longitudinal designs must be employed in future studies to expand on the current findings and better elucidate the causal connection between Social Media Addiction (SMA), sleep deprivation, and performance in organisations. This research is cross-sectional in nature. Organizations must consider formulating overall employee well-being strategies that prioritise mental health as a critical component of productivity. Acknowledging smartphone addiction as a genuine workplace challenge with a tangible effect on output would enable organisations to proactively design potential preventive interventions.

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