UNVEILING CONNECTIONS: A CORRELATIONAL STUDY ON THE INTERPLAY BETWEEN SMARTPHONE ADDICTION AND SLEEP QUALITY, AMONG POST-GRADUATE STUDENTS IN A POST-PANDEMIC SETTING

Shridhar.S.N Ph.D. Research Scholar Department of P.G .Studies and Research in Social Work Davanagere University EmailId:shridharsn2011@gmail.com Mobile number: 8618212374

Dr.Thippesh .K Assistant Professor Department of P.G. Studies and Research in Social Work Davanagere University EmailId:thippeshinfo03@gmail.com Mobile number: 9880452671

Abstract

In the wake of the transformative post-pandemic landscape, this study endeavours to unravel on the intricate web of relationships that shape the lives of post-graduate students at Kuvempu University. Titled "Unveiling Connections," this research employs a comprehensive correlational framework to delve into the interplay between smartphone addictions and sleep pattern among the students. The backdrop of the post-pandemic era has witnessed unprecedented shifts in academic, social, and technological realms. Against this evolving canvas, the study examines the symbiotic interactions between smartphone addiction and sleep quality – two dimensions crucial to the holistic well-being and academic pursuits of post-graduate students. By dissecting the intricate threads that link excessive smartphone usage and sleep patterns, the research strives to uncover potential associations, dependencies, and implications. By harnessing data from post-graduate students at Kuvempu University, this study seeks to discern the patterns that emerge in the aftermath of global disruptions. Through a meticulous analysis of quantitative data, the study endeavours to illuminate how smartphone addiction might influence sleep quality, and vice versa, within the context of a changing world. Additionally, the study acknowledges the potential role of the post-pandemic environment in shaping these interactions, potentially magnifying or mitigating their impact. The insights gleaned from this research are expected to contribute to a nuanced understanding of the evolving landscape of post-graduate education in the face of technological advancements and societal transitions. It is anticipated that the findings will not only enrich academic discourse but also inform practical interventions aimed at promoting healthier technological habits and fostering improved sleep quality among post-graduate students. As the education sector grapples with new challenges and opportunities, "Unveiling Connections" aspires to provide a vantage point from which to understand the multifaceted dynamics at play. By recognizing the intricate interplay between smartphone addiction and sleep quality, the study lays the foundation for holistic approaches that prioritize student well-being in the ever-evolving post-pandemic setting.

Key Words: Correlational study, Smartphone addiction, Sleep quality, post-graduate students, post-pandemic setting, technological habits, global disruptions, societal transitions, education sector, practical interventions.

Introduction:

In the wake of a global pandemic that reshaped the contours of education, the academic world is experiencing a profound transformation. Among the myriad challenges confronting the post-graduate student community, two issues stand out with growing urgency: the pervasive grip of smartphone addiction and the elusive pursuit of sound sleep quality. In this digital age, smartphones have become indispensable tools, seamlessly integrating into the fabric of daily life. However, this convenience often conceals a hidden price, as excessive smartphone use has emerged as a pressing concern, impacting not only academic performance but also the very essence of well-being. Simultaneously, the pandemic-driven shift to remote and online learning has blurred the boundaries between work, education, and leisure. With the virtual classroom constantly at hand, post-graduate students find themselves navigating a complex labyrinth of digital engagement, often at the expense of their sleep quality. As the divide between day and night diminishes the consequences of this altered landscape manifest in the form of fatigue, stress, and cognitive exhaustion. In this era of interconnectedness,

where the smartphone acts as both a lifeline and a potential snare, a deeper understanding of the interplay between smartphone addiction and sleep quality is indispensable. To address this pressing concern, our study embarks on an exploration that transcends the surface. We delve into the intricate relationship between these two phenomena among post-graduate students, in a post-pandemic setting. As we embark on this journey, we aim not only to unveil connections but also to illuminate the path forward. Our research seeks to contribute insights that will empower educational institutions, policymakers, and social work practitioners to foster a digital landscape that promotes well-being, productivity, and academic excellence. This study is more than an academic pursuit; it is a call to action in a world where the boundaries of work, study, and rest have become increasingly fluid. Together, let us explore the untrodden paths of smartphone addiction and sleep quality in the evolving landscape of post-graduate education.

Methods and Methodology
The central goal of the research is to delve into the intricate connections linking smartphone dependency and the sleep patterns of postgraduate students, within the framework of a post-pandemic environment. The researcher adopted a quantitative research methodology, focusing on the descriptive research technique. The primary means of gathering data revolved around the administration of a structured questionnaire to obtain first-hand information.

The Abbreviated Smartphone Addiction Scale (SV): This concise assessment tool gauges the severity of problematic smartphone usage. Participants respond to a series of 10 questions with a range of answer options. The scale accommodates a spectrum of scores, where elevated scores correspond to a heightened degree of problematic smartphone usage. The predefined benchmarks stand at 31 for males and 33 for females. Prior research shows that the scale is dependable, and its scores align with other assessments of smartphone use issues and frequency. In the context of our on-going investigation, we observed a high level of internal consistency, as evidenced by a Cronbach's alpha value of 0.91 .(Kwon et al., 2013)

The Pittsburgh Sleep Quality Index (PSQI): The tool used to rate sleep quality for the past month. This scale has 18 questions that cover seven different parts of sleep quality. Each part is given a score from 0 (no problems) to 3 (severe problems). All the scores from these parts are added together, and the total can be anywhere from 0 to 21. If your score is 5 or lower, your sleep is considered good. If your score is higher than 5, it suggests your sleep quality might not be good. Mollayeva et al. conducted meta-analysis affirm the PSQI as a reliable and valid instrument for assessing sleep quality across diverse populations, making it a valuable tool for both research and clinical purposes in the field of sleep medicine and psychology. A similar study exhibited robust internal consistency, Demonstrating a substantial level of dependability, the study revealed a Cronbach's alpha coefficient of 0.88, affirming its robust reliability.(Zarei, 2021). Information was gathered by the researcher using a simple random method through Google form, involving 57 survey participants selected from Kuvempu University main campus. Additionally, the researcher reviewed supplementary sources that encompassed academic materials. To scrutinize the data, a descriptive statistical analysis was conducted, utilizing SPSS 26.0 software.

Research Objectives:
1. To unravel the intricate interplay between post-pandemic smartphone addiction levels and the sleep quality
2. To identify potential patterns and trends in smartphone addiction and sleep quality interactions among post-graduate students.
3. To provide actionable insights for designing interventions that promote healthier smartphone usage habits and improved sleep quality in post-graduate students.
4. To enrich our comprehension of post-pandemic wellness by examining the fluid interrelationships between smartphone addiction and the standard of sleep.

Hypothesis:

H0: The distribution of scores for smartphone addiction and sleep quality among post-graduate students follows a normal distribution.

H1: The distribution of scores for smartphone addiction and sleep quality among post-graduate students does not follow a normal distribution.

H0: No notable distinction emerges in the average ratings of smartphone dependency and the caliber of sleep among postgraduate students.

H1: No notable distinction emerges in the average ratings of smartphone dependency and the caliber of sleep among postgraduate students.

H0: A substantial link exists concerning smartphone usage and the inadequate sleep among students.

H1: No substantial link exists concerning smartphone usage and the inadequate sleep among students.

Results and Discussion:

Table .no-1

Demographic Profile of Respondents:		Frequency	Per cent
GENDER	FEMALE	35	61%
	MALE	22	39%
	Total	57	100.0
AREA OF RESIDENCE	RURAL	40	70.17%
	URBAN	17	29.82%
	Total	57	100.0%
CATEGORY	GENERAL	7	12.28%
	OBC	35	61.40%
	SC	12	21.05%
	ST	3	5.26%
	Total	57	100.0%

The profile of the is   demographic respondents

characterized by gender, area of residence, and general category, providing insights into the composition of the study sample.

- **Gender:** The majority of the respondents were female, constituting 61% of the total sample, with males making up 39% of the participant pool. This reflects slightly higher representation of females in the study.
- **Area of Residence:** A substantial portion of respondents, accounting for 70.17%, resided in rural areas, whereas 29.82% lived in urban regions. This indicates a predominant rural representation in the study population.
- **General Category:** Among the respondents, 12.28% belonged to the general category, while the majority identified as belonging to other backward classes (OBC) at 61.40%. Additionally, 21.05% were from scheduled castes (SC), and 5.26% from scheduled tribes (ST). These findings showcase a diverse composition of general category and various reserved categories within the study cohort.

These demographic insights provide a comprehensive insight into the composition of the study's participant pool, characterized by a predominantly female majority, a significant representation from rural areas, and a diverse mix of general and reserved category participants. Such demographic

considerations are vital for contextualizing research findings and ensuring representative study outcomes.

Table.no –2

Smartphone Addiction Scale (SV)	SD		D		WD		WA		A		SA	
Missing planned work due to smartphone use.	6	11%	19	33%	3	5%	6	11%	21	37%	2	4%
Having a hard time concentrating in class, while doing assignments, or while working due to smartphone use.	5	9%	16	28%	1	2%	7	12%	24	42%	4	7%
Feeling pain in the wrists or at the back of the neck while using a smartphone.	8	14%	13	23%	2	4%	4	7%	26	46%	4	7%
Won't be able to stand not having a smartphone.	13	23%	18	32%	2	4%	6	11%	14	25%	4	7%
Feeling impatient and fretful when I am not holding my smartphone.	8	14%	21	37%	2	4%	10	18%	13	23%	3	5%
Having my smartphone in my mind even when I am not using it.	10	18%	28	49%	1	2%	4	7%	11	19%	3	5%
I will never give up using my smartphone even when my daily life is already greatly affected by it.	12	21%	17	30%	7	12%	3	5%	17	30%	1	2%
Constantly checking my smartphone so as not to miss conversations between other people on Twitter or Facebook	10	18%	27	47%	1	2%	6	11%	11	19%	2	4%
Using my smartphone longer than I had intended.	7	12%	21	37%	5	9%	4	7%	18	32%	2	4%
The people around me tell me that I use my smartphone too much.	10	18%	20	35%	3	5%	9	16%	12	21%	3	5%

1. **Work and Concentration Issues:** A significant number of respondents (33% to 42%) reported missing planned work and facing concentration difficulties due to smartphone use. This suggests that smartphone addiction can disrupt productivity and focus.
2. **Physical Discomfort:** Many respondents (23% to 46%) experienced physical discomfort such as wrist or neck pain while using smartphones. This indicates a potential link between excessive smartphone use and physical discomfort.
3. **Dependency on Smartphones:** A notable percentage (23% to 37%) expressed a strong dependence on smartphones, including an inability to stand not having one and feeling impatient without it. This implies a reliance on smartphones for emotional well-being.
4. **Constant Preoccupation:** Almost half of the respondents (49%) constantly thought about their smartphones, even when not using them. This reflects a high level of preoccupation, potentially affecting daily life.
5. **Reluctance to Give Up:** A significant portion (21% to 30%) would not give up their smartphones, even if it significantly affected their daily life. This indicates a strong attachment to smartphones despite negative consequences.
6. **Social Media Checking:** Many respondents (47%) habitually checked their smartphones to avoid missing social media conversations. This highlights the role of social media in smartphone addiction.
7. **Exceeding Intended Usage:** A notable percentage (32% to 37%) exceeded their intended smartphone usage, showing a lack of control over screen time.

8. **Concerns from Others:** A significant proportion (16% to 35%) had concerns voiced by those around them about excessive smartphone use, straining interpersonal relationships.

In summary, the data illuminates the prevalence of various smartphone addiction behaviours, encompassing disruptions in productivity, physical discomfort, emotional dependency, persistent preoccupation, and an unwavering resistance to relinquishing smartphones. As per the cut-off score for females >33 and male >31 a shocking revelation was made were nearly 51% and 55% of female and male students were addicted to smartphone usage which is higher as per the study results of 26.9% and 28.0% of addiction to smartphone.(Bhalerao et al., 2020). These findings accentuate the exigency of cultivating awareness and implementing intervention strategies to address smartphone addiction and foster more balanced digital habits, thus warranting further investigation and attention within the research domain.

Table.no –3

Smartphone Addiction: Tests of Normality					Shapiro-Wilk	
	N	Mean	Median	SD	W	p
smart	57	31.7	32	8.74	0.977	0.338

Since our size was sample small, determining the probability distribution of the variables in question is crucial for choosing appropriate statistical tests. The Shapiro-Wilk analysis was applied for the purpose of this study, and it found that there was no evidence of non-normality with a P value of 0.338 > 0.05, it is clear that the null assumption cannot be rejected; hence the researcher chose to use parametric testing.

Table.no –4

Mean Comparison :			M	SD	SE
GENDER					
SA	M	22	30.1	9.36	2.00
	F	35	32.7	8.30	1.40

Independent Samples Test

		F	P value	t	DF	P VALUE	MD	SE	95% CI L	U
S A	The presumption of mean equality was sustained.	0.302	0.585	1.10	55	0.277	-2.61	2.37	-2.15	7.36

To scrutinize potential distinctions in smartphone addiction scores among participants, two samples t-test was executed. The validity of the test was verified by assessing the assumption of equal variances using Levene's test, which yielded a non-significant result (F (1, 55) = 0.302, p > 0.05),

affirming the fulfilment of the equal variances assumption. The ensuing t-test analysis divulged no statistically substantial divergence in smartphone addiction scores between male participants (M = 30.1, SD = 9.36) and female participants (M = 32.7, SD = 8.40), t (55) = 1.10, p = 0.277, two-tailed. The mean difference between the groups was -2.37532, encompassing a 95% confidence interval that spanned from -2.15 to 7.36. These results underscore that the observed mean difference is devoid of statistical significance, affirming the absence of significant differentiation in smartphone addiction scores between the two groups. (Kumar et al., 2019).

Table.no –5

(PSQI) GLOBAL SCORE

		N	Missing	Mean	SD
(PSQI) SCORE	GLOBAL	57	0	5.19	3.59

 A mean score of 5.19 (SD = 3.59) (PSQI) indicates a moderate level of sleep-related issues over the previous month. This score indicates that, while the individual's sleep quality cannot indicate significant difficulties, moderate sleep-related concerns persist among smartphone users(Soni et al., 2017).This interpretation is consistent with the PSQI guidelines, which stipulate that scores of 5 or lower generally suggest better sleep quality, but scores greater than 5 may indicate the presence of sleep-related disorders.

Table.no –6

Mean scores among genders PSQI

	GENDER	N	Mean	SD
(PSQI) GLOBAL SCORE	FEMALE	35	5.17	4.05
	MALE	22	5.23	2.79

The data presented suggests that there is no noteworthy statistical disparity in the mean sleep quality scores between females and males. Females indicated an average sleep quality score of 5.17 ±4.05, men exhibited mean sleep quality score of 5.23± 2.79.These scores suggest that both females and males experienced a similar level of sleep-related difficulties.(Islam et al., 2021), falling within the range of moderate sleep issues according to the (PSQI) guidelines. The lack of a statistically significant difference in mean scores reinforces the notion that sleep-related concerns were relatively consistent across both genders within the studied population. This suggests that factors influencing sleep quality, which are likely to be multidimensional and include academic stress, technological engagement, post-pandemic adaptation, and other psychosocial aspects, had comparable effects on both females and males.

Table.no –7

Correlations		SMARTPHONE ADDICTION	(PSQI)GLOBAL SCORE
SMARTPHONE ADDICTION	(r)	1	.395[**]
	P value		0.001
(PSQI)GLOBAL SCORE	(r)	.395[**]	1
	P value	0.001	

The   study

delved into the link between smartphone addiction and the sleep quality of students through a thorough correlation analysis. The results revealed a modest yet meaningful positive correlation ($r = .395$, $p < 0.05$) (Samat et al., 2020), (Kumar et al., 2019),
 Indicating that as Smartphone addiction levels increased; there was a corresponding increase in sleep quality scores. This finding supports the initial hypothesis (H0) and suggests that higher Smartphone usage tends to coincide with poor sleep quality among the students.

Social Work Implications:
The study carries several potential social work implications that can inform practice, policy, and interventions aimed at supporting the well-being of post-graduate students. Some of these implications include:

1. **Digital Well-being Workshops:** Social workers can develop workshops and training sessions that focus on promoting healthy smartphone usage and raising awareness about the potential impact of excessive smartphone use on sleep quality. These workshops can equip students with strategies to manage their digital engagement more mindfully.
2. **Sleep Hygiene Education:** Social workers can collaborate with university health services to provide sleep hygiene education to post-graduate students. This can involve teaching students about practices and routines that promote better sleep quality, thus mitigating the negative effects of smartphone use on sleep.
3. **Counselling and Support Services:** Given that excessive smartphone use and poor sleep quality can contribute to stress and mental health issues, social workers can offer individual or group counselling sessions to address these concerns. These sessions can provide coping strategies and stress management techniques.
4. **Policy Recommendations:** Based on the study's findings, social workers can advocate for university policies that encourage healthy technology usage among students and promote environments conducive to good sleep quality. These policies might involve creating "technology-free" zones or implementing guidelines for digital detox.
5. **Peer Support Programs:** Social workers can collaborate with student organizations to establish peer support programs that facilitate discussions about healthy technology use and sleep management. Peers can share their experiences and strategies for maintaining a balanced digital lifestyle.
6. **Parent and Family Workshops:** For post-graduate students who might still live with their families, social workers can conduct workshops for parents and families to raise awareness about the potential impact of excessive smartphone use on sleep. This can foster a supportive home environment that promotes healthy habits.
7. **Research-Informed Advocacy:** Social workers can use the study's findings to advocate for broader societal changes that recognize the importance of digital well-being and sleep quality, especially in an increasingly digital world. This might involve collaborating with policymakers and educational institutions.
8. **Collaboration with Technology Industry:** Social workers can collaborate with technology companies to develop features that promote healthier technology use, such as built-in reminders for breaks and screen time limits. This collaboration can help create technology that is more conducive to well-being.

By incorporating these social work implications, practitioners can address the challenges posed by smartphone addiction and sleep quality issues among post-graduate students, fostering a healthier, more balanced, and supportive academic environment.

Conclusion:
In the realm of post-graduate education in a post-pandemic world, this study unravels a significant connection between smartphone addiction and sleep quality. The results reveal a concerning

prevalence of smartphone addiction behaviours, encompassing productivity disruptions, physical discomfort, emotional reliance, and constant preoccupation.

Surprisingly, both male and female students, despite diverse backgrounds, grapple with similar levels of smartphone addiction and sleep-related challenges. Moreover, the study establishes a substantial, affirmative link between smartphone addiction and a decline in sleep quality. These revelations demand immediate attention. They beckon social work practitioners and policymakers to craft tailored interventions, initiate digital well-being programs, impart sleep hygiene education, and advocate for policies that champion responsible technology usage. In sum, this research resounds as a call to action in the context of post-graduate education. It urges the creation of a nurturing academic environment, one where smartphone addiction is acknowledged, addressed, and ultimately replaced with healthier, more balanced digital habits. (Shridhar S N & Thippesh, 2023).

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