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Correlation Between Smartphone Addiction with Postural Awareness, Screen Time and Neck Disability in College Going Students

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ABSTRACT

INTRODUCTION: The widespread adoption of smartphones in recent years has significantly influenced daily routines, especially among college students. While smartphones offer convenience and connectivity, excessive use has raised concerns regarding its impact on physical health, particularly posture and musculoskeletal well-being.
The aim of this study is to find the correlation between smartphone addiction, postural awareness, screen time, and neck disability among college-going students.
METHODOLOGY: This study consists of total 200 participants which are selected from college and society. Standardized tools such as the Smartphone Addiction Scale – Short Version (SAS-SV), Postural Awareness Scale – English version (PAS-E), Neck Disability Index (NDI), and the Numeric Pain Rating Scale (NPRS) were employed for data collection.
RESULT: Statistical analysis using Pearson correlation revealed significant positive correlation between smartphone addiction and both neck disability ($r = 0.524$, $p < 0.01$) and screen time ($r = 0.501$, $p < 0.01$), indicating that higher addiction levels are associated with increased neck pain and longer screen usage. A weaker but significant relationship was also found between smartphone addiction and postural awareness ($r = 0.143$, $p < 0.05$).
CONCLUSION: This study concludes that excessive smartphone usage and addiction among college students are significantly correlated with increased neck disability and screen time, and Postural awareness may affect Smartphone usage.

KEYWORDS: Smartphone Addiction, Neck Disability, Postural Awareness, Screen time,

INTRODUCTION

The rapid growth of digital technology in the 21st century has had a profound impact on many areas of life, from communication and education to work and leisure. Among the most influential of these technological innovations is the smartphone, which has become a vital tool for millions of people around the globe. Its wide range of features—including internet connectivity, entertainment options, educational apps, and instant messaging—has led to a dramatic rise in its use, particularly among young adults. [1]
Prevalence of smartphone usage worldwide is 2.1 billion people, and in India, smartphone usage is 349 million people. India has become the second most large wireless network in the world, overtaking United States and second only to China.[2]
The increase in accessibility of smartphone

has especially impacted on college going students who often use them not only for their academic purposes but also for extended entertainment such as social media engagement, gaming and streaming content.

While using a smartphone, it is required for the students to maintain their head in prolong downward position and hold their device in front of them so they can see it, which makes head tilt forward and upper back unsupported. So, repetitively assume this kind of body posture can alter the natural curvature of the cervical spine, potentially leading to chronic neck pain and upper back pain. Prolonged screen time with limited movement also contributes to muscle fatigue and reduce physical activity, both which associated with the development of the musculoskeletal disorders. [3]

Poor body posture plays very important role in the spine related problems. Nowadays it is also very common that increase in the neck pain and back pain related issues due assume poor body posture for prolong duration in daily routine and also due lack of postural awareness. When students assume a posture which is not good for their body; they often do not even notice that until that causes pain. They often get assume poor body posture without being aware of it and some students also gave data that it is very difficult for them to consciously assume a specific good body posture for prolonged duration. So due to all these; there might be neck pain and back pain related issues are very commonly developed in young generation.

Some research suggests that posture not only reflects emotional status but may also influence them. For example; poor body posture also had a bad effects on a people psychologically and on other hand maintaining an upright body posture has been associated with increase feeling of confidence and emotional resilience and also improved memory. Body posture profoundly impacts how we feel and acts, our health and wellbeing. [4]

Given these concerns it is important to assess how awareness of posture; smart phone usage pattern and related pain symptoms are interconnected, especially in populations with high usage rates such as college going students.

MATERIALS & METHODS

This is correlation study which was conducted in Ahmedabad, Gujarat, India after taking ethical approval from the institutional ethical committee. Through purposive sampling method data was collected for a period of 5 months. For this study total 200 college going students were selected between aged of 18 to 25 years from colleges and societies. Male and female both were included. The written informed consent was obtained from every individual. The purpose of this study was explained to the individuals and demographic data name, age, gender, height, weight, BMI, screen time, intensity of musculoskeletal pain if present by NPRS was taken. PAS-E was used for postural awareness, SAS -SV was used for smartphone addiction and NDI was used for neck disability. Participants with any orthopedic conditions, neurological deficits, surgical conditions, musculoskeletal disorder were excluded from this study.

Neck Disability Index (NDI)

NDI is a validated tool used to assess neck pain and related disability, especially from cervical spine disorders. It includes 10 items covering areas such as pain, personal care, work, and sleep, each scored from 0 to 5. Higher scores indicate greater disability. In this study, it was used to evaluate neck problems caused by prolonged poor posture during smartphone use. The test-retest reliability is high (ICC > 0.8), indicating consistent results over time and internal consistency is good (Cronbach's alpha > 0.7), showing items measure the same construct. The construct validity correlates well with other neck pain measures. The concurrent validity is linked to pain intensity and quality of life and Responsiveness is sensitive to changes in symptoms over time. [5]

Smart Phone Addiction Scale (SAS – SV)
SAS-SV is a reliable and valid tool for measuring smartphone addiction. It shows good internal consistency (Cronbach's alpha 0.81–0.91) and test-retest reliability. It has been validated across adolescents, students, and adults. Cutoff scores are for males and female is 31 and 33 respectively.[6]

Postural Awareness Scale (PAS – E)
PAS-E is self-reported measure assessing awareness of posture and movement habit.
The PAS-E evaluate an individual ability to recognized and adjust their posture. It is typically assessed body awareness, postural awareness and mindfulness i.e.; ability to focused on and adjust posture it consists 12 self-reported questions which scored between 1 to 6 which is completely like me to completely not like me. [7]

STATISTICAL ANALYSIS

Descriptive statistics, correlation analysis were performed using statistical analytic software- SPSS 26. The mean and SD were calculated for each variable. As the outcome measures were normally distributed, Pearson correlation test was used to assess the correlation between the variables (r). Analysis was done to check for the prediction. The significant level was set at $p<0.05$. The Pearson correlation coefficient ranges from -1 to +1, a positive value indicates a positive correlation and negative value indicates negative correlation.

RESULT

The present study was conducted to find the Correlation between smartphone addiction with postural awareness, screen time and neck disability in college going students. Total 200 college going students were individuals were taken. Statistical analysis using Pearson correlation test

TABLE 1. DISCRIPTIVE CHARACTARISTIC OF INDIVIDUAL (MEAN ± SD)

FACTORS	STUDENTS n (n = 200), (MEAN ± SD)
AGE (YR)	21.5±1.6
BMI (KG /M^2)	22.6± 2.9

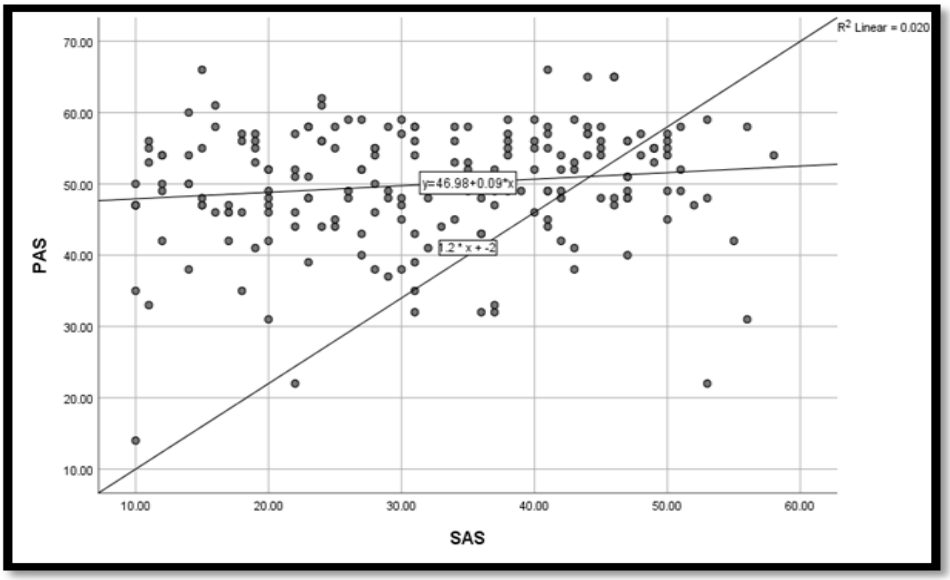
TABLE 2. DESCRIPTIVE CHARACTERISTIC OF ALL OUTCOME MESUERS (MEAN ± SD)

OUTCOME MESURES	STUDENTS (N =200) (MEAN ±SD)
PAS-E	49.9 ± 8.1
SAS – SV	31.9 ± 12.6
NDI	14.5 ± 11.3
SCREEN TIME	4.7 ± 2.1

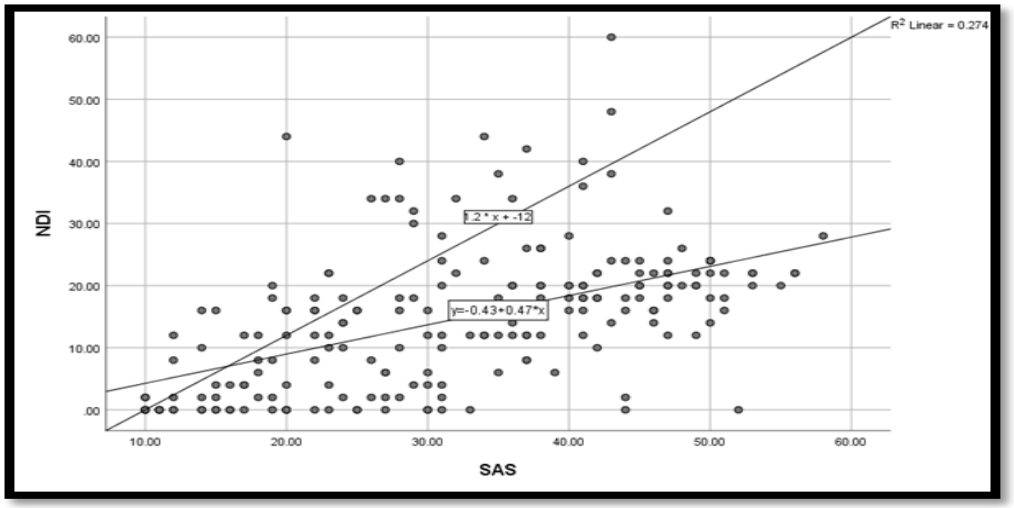
Table 3. CORRELATION OF SAS-SV WITH all outcome measure

Outcome	SAS-SV (n=200), r value	p value
PAS	0.143*	0.04
NDI	0.524	0.00
Screen time	0.409	0.00

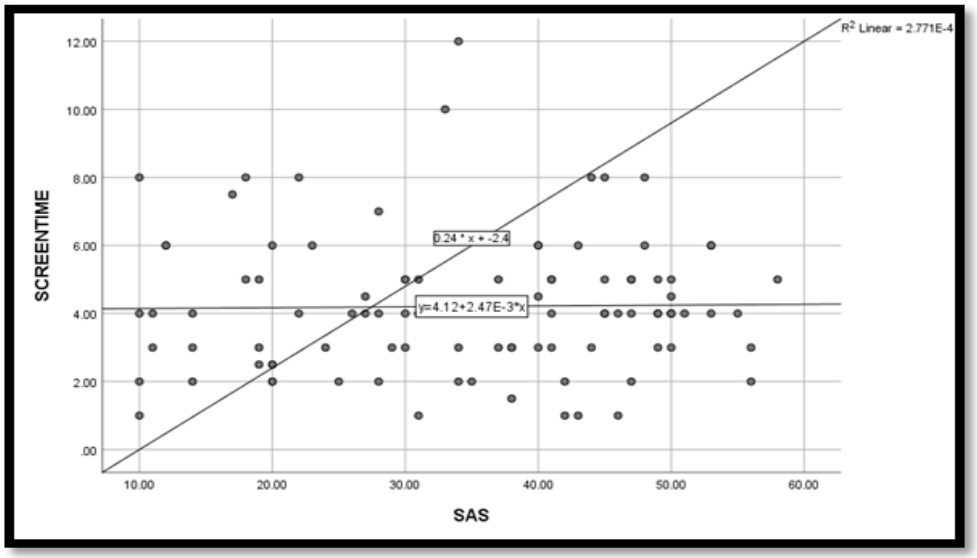
***Correlation is significant at 0.05 value**



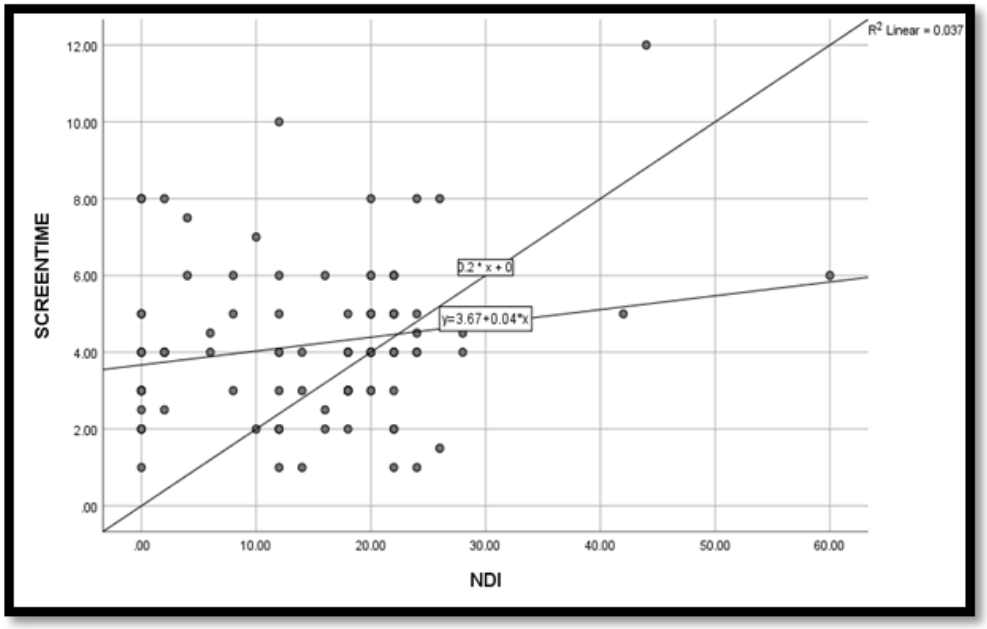
Graph 1. Correlation between SAS-SV and PAS



Graph 2. Correlation between SAS-SV and NDI in college going students



Graph 3. Correlation between SAS-SV and SCREEN TIME in college going students



Graph 4. Correlation between NDI and SCREEN TIME in college going student

Table 3 and graph 1,2,3and 4 shows statistical significant moderate positive correlations between smartphone addiction and both neck disability ($r = 0.524$, $p < 0.01$) and screen time ($r = 0.501$, $p < 0.01$), A weak but significant positive correlation was also found between smartphone addiction and postural awareness ($r = 0.143$, $p < 0.05$). There is also find the correlation between NDI and Screen time (r=0. 409.p<0.01).

DISCUSSION

The present study finds the correlation between smartphone addiction, postural awareness, screen time, and neck disability among 200 college-going students aged 18–25.

The results showed a weak positive correlation between smartphone addiction (SAS-SV) and postural awareness (PAS-E) ($r = 0.143$, $p = 0.043$), suggesting that as smartphone addiction increases, students may begin to develop a slightly heightened awareness of their posture, possibly due to discomfort or pain, though the strength of the correlation is relatively weak. This could reflect a reactive awareness, where posture becomes noticeable only after symptoms appear.

A moderate positive correlation between smartphone addiction and neck disability (NDI) was found ($r = 0.524$, $p < 0.001$), indicating that students who reported higher levels of smartphone use were more likely to experience neck-related disability. This supports existing literature showing that prolonged and non-ergonomic smartphone use contributes significantly to musculoskeletal complaints, particularly in the cervical spine.

Additionally, a strong correlation was also observed between screen time and neck disability ($r = 0.409$, $p < 0.001$). Increased daily screen time was associated with greater reports of neck pain and dysfunction, which aligns with findings by Kim et al. (2015) and Mustafaoglu et al. [8] (2021), who emphasized that prolonged forward head posture and slouched sitting patterns aggravate cervical spine issues.

Smartphone addiction also showed a strong correlation with screen time ($r = 0.501$, $p < 0.001$), which is intuitive—those who are addicted to smartphones naturally spend more time on them. However, despite the known postural risks, the correlation between postural awareness and screen time was not statistically significant, suggesting that most students are not proactively aware of their body posture during extended screen use.

Overall, these findings highlight an emerging health concern in the college demographic where behavioral addiction to smartphones not only disrupts mental well-being but also manifests as physical impairments, particularly in the neck and back regions. Lack of ergonomic practices, prolonged sedentary behavior, and poor posture habits compound these risks.

CONCLUSION

This study concludes that excessive smartphone usage and addiction among college students are significantly correlated with increased neck disability and screen time, and Postural awareness may affect Smartphone usage. Thus, Smartphone Addiction and Screen time affects neck disability.

Declaration by Authors

Ethical Approval: Approved

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REFERENCES

1. Aljomaa SS, Qudah MF, Albursan IS, Bakhiet SF, Abduljabbar AS. Smartphone addiction among university students in the light of some variables. Computers in Human Behavior. 2016 Aug 1; 61:155-64.

2. Shah IK, Kumar A, Rajasekar S, Pathak AA, Suvarna N, G opal K, Muthukrishnan R. Association between Smartphone Addiction and Breathing Pattern in Sedentary Young College-Going Students–A Cross-Sectional Study. Nigerian Journal of Clinical Practice. 2023 Nov 1;26(11):1637-41.
3. Ahmed S, Mishra A, Akter R, Shah MH, Sadia AA. Smartphone addiction and its impact on musculoskeletal pain in neck, shoulder, elbow, and hand among college going students: a cross-sectional study. Bulletin of Faculty of Physical Therapy. 2022 Dec;27(1):5.
4. Feng D, Zhang Y. College Students' Knowledge, attitudes, and practices regarding body posture: A cross-sectional survey--Taking a university in Wuhu City as an example. Preventive medicine reports. 20
5. Vernon H, Mior S. The Neck Disability Index: a study of reliability and validity. Journal of manipulative and physiological therapeutics. 1991 Sep 1;14(7):409-15.
6. Kwon M, Kim DJ, Cho H, Yang S. The smartphone addiction scale: development and validation of a short version for adolescents. PloS one. 2013 Dec 31;8(12):e83558.
7. Cramer H, Mehling We, Saha Fj, Dobos G, Lauche R. Postural Awareness And Its Relation to Pain: Validation of An Innovative Instrument Measuring Awareness Of Body Posture in Patients with Chronic Pain. Bmc Musculoskeletal Disorders. 2018 Dec; 19:1-0
8. Mustafaoglu R, Yasaci Z, Zirek E, Griffiths MD, Ozdincler AR. The relationship between smartphone addiction and musculoskeletal pain prevalence among young population: a cross-sectional study. The Korean journal of pain. 2021 Jan 1;34(1):72-81.

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