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Original Research Article

Tech Neck: Investigating the Impact of Smartphone Overuse among College Students

Sidra Arshad[1*], Subhav Sharma[1], Sarah Arshad[2]

[1]Assistant Professor, Department of Occupational Therapy, Jamia Hamdard, New Delhi, 110062, India
[2]Consultant Occupational Therapist, Hyderabad, Telangana, 500008, India

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Abstract: This correlational study aimed to examine the relationship between smartphone addiction and neck disability among college students. A total of 100 participants aged 18 to 25 years were selected through convenience sampling. Outcome measure used were the Smartphone Addiction Scale–Short Version (SAS-SV) and the Neck Disability Index (NDI). Participants included both male and female smartphone users, while individuals with pre-existing musculoskeletal or neurological conditions were excluded. The SAS-SV assessed addiction-related behaviors on a 6-point scale with gender-specific cut-offs, and the NDI evaluated the degree of neck-related functional impairment. Results revealed a positive correlation between higher smartphone addiction scores and increased neck disability. The findings suggest that excessive smartphone use may contribute to neck discomfort and functional limitations, likely due to poor posture and prolonged device usage. These results underscore the need for ergonomic awareness and preventive strategies among young adults to mitigate the risk of musculoskeletal issues.

Keywords: Smartphone addiction, Neck disability, College students, Musculoskeletal, Posture.

INTRODUCTION

Compact high resolution cameras, easy and fast access to dispatch or dispatches, GPS navigation apps, state of the art media players, easy access to the internet, social media, and mobile gaming are all reasons which contribute to the multitudinous use and preoccupation to smartphone [1].

As they enable clinicians and scholars to snappily pierce accoutrements to promote better decision- making at the point- of- care, smartphone features hold considerable pledge for operations in medical education. Despite its advantages, inordinate use may beget a variety of physical side goods, including neck or wrist pain, and may be linked to anxiety and sleep difficulties [8].

The inordinate operation of smartphones to a position where it interferes with the diurnal lives of druggies is therefore considered to be smartphone dependence [2]. Along with the rise in operation of smartphone, implicit pitfalls for developing musculoskeletal problems have been reported [3].

Pupil smartphone dependence has had several mischievous goods, including reduced face- to- face commerce, adding individualization, addicting behaviours, and psychiatric issues, to name a many. Likewise, studies link smartphone use to musculoskeletal complaints similar as muscle frazzle and pain, as well as dropped cervical range of stir. In addition, neck pain can affect from bad posture, which activates muscles and causes ligaments to deteriorate. This can also impact the proprioceptors in the muscles and ligaments [5, 6].

utmost smartphone tasks bear druggies to gawk sprucely down and to hold their arms out in front of them to read the screen that makes their head move forward which can beget an inordinate anterior wind in the lower cervical chines and an inordinate posterior wind in the upper thoracic chines to maintain balance, that places stress on the cervical chine and the neck muscles [4]. Overstepping the neck and shoulders reduces job capacity, exacerbates muscular fatigue, and has an impact on the musculoskeletal system [10]. Scholars are more dependent on smartphones and are potentially more

***Corresponding Author:** Sidra Arshad
Assistant Professor, Department of occupational therapy, Jamia Hamdard, New Delhi, 110062, India

vulnerable to smartphone dependence when compared with. Aged generation [1].

There were veritably many studies fastening on neck pain and disability due to extreme use of smartphones in University scholars but there was no studies which identified Smartphones dependence position to neck disability in occupational remedy scholars in Indian environment. Thus the end of the present study is to probe the position of smartphones dependence and its relationship with neck function in occupational remedy scholars.

METHODS AND MATERIAL

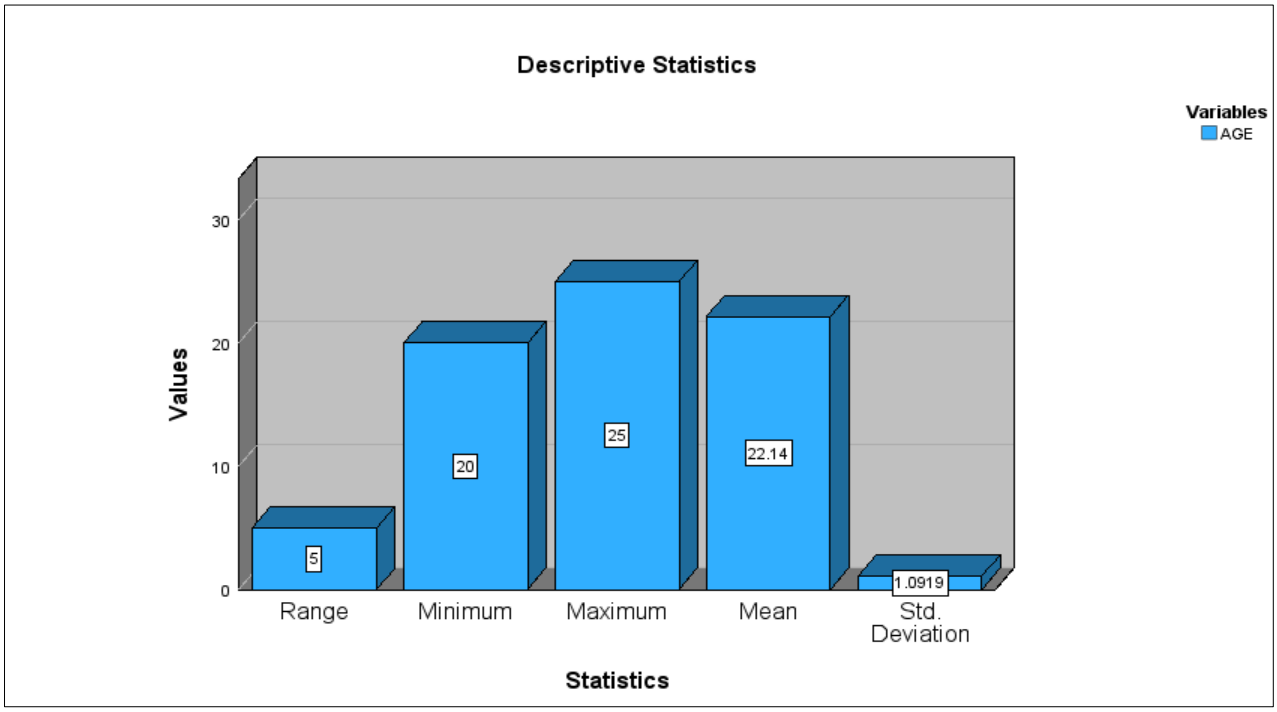
This correlational study was conducted with a sample size of 100 participants selected through convenient sampling. Data was collected using questionnaires from participants of age 18 to 25 years. Both male and female smartphone users were included, while individuals with pre-existing neck or upper limb conditions, recent injuries, congenital abnormalities, severe surgical history, or neurological disorders were excluded.

Two standardized tools were used in the study, the Smartphone Addiction Scale-Short Version (SAS-SV) [11], and the Neck Disability Index (NDI) [12]. The SAS-SV includes 10 items assessing addiction-related behaviours like overuse and withdrawal, scored on a 6-point scale with gender-specific cut-offs (31 for males, 33 for females). The NDI, adapted from the Oswestry Low Back Pain Index, evaluates neck disability across 10 domains on a 0–5 scale, with higher scores indicating greater disability. Interpretation ranges from no to complete disability and was used to analyse the relationship between smartphone addiction and neck disability.

RESULTS AND CONCLUSION

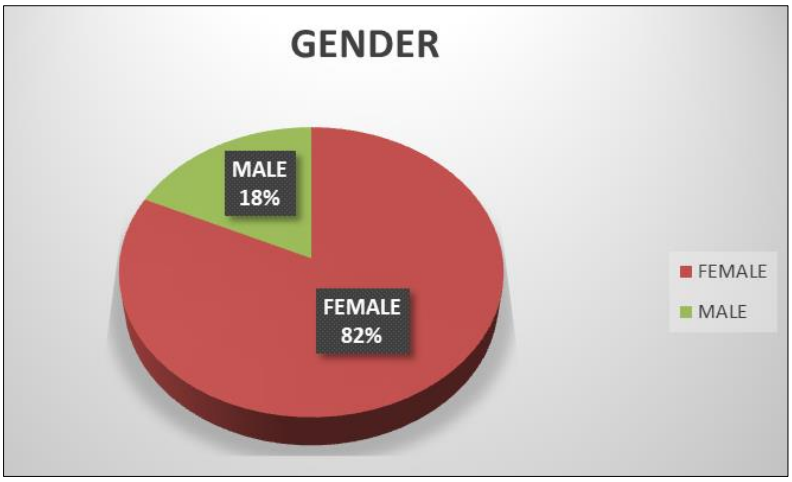
A total of 100 participants between 18 and 25 years of age, the mean age was 22.14 years. Where 82 participants were female and 18 were male.

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
AGE	100	5	20	25	22.14	1.092
Valid N (list wise)	100					



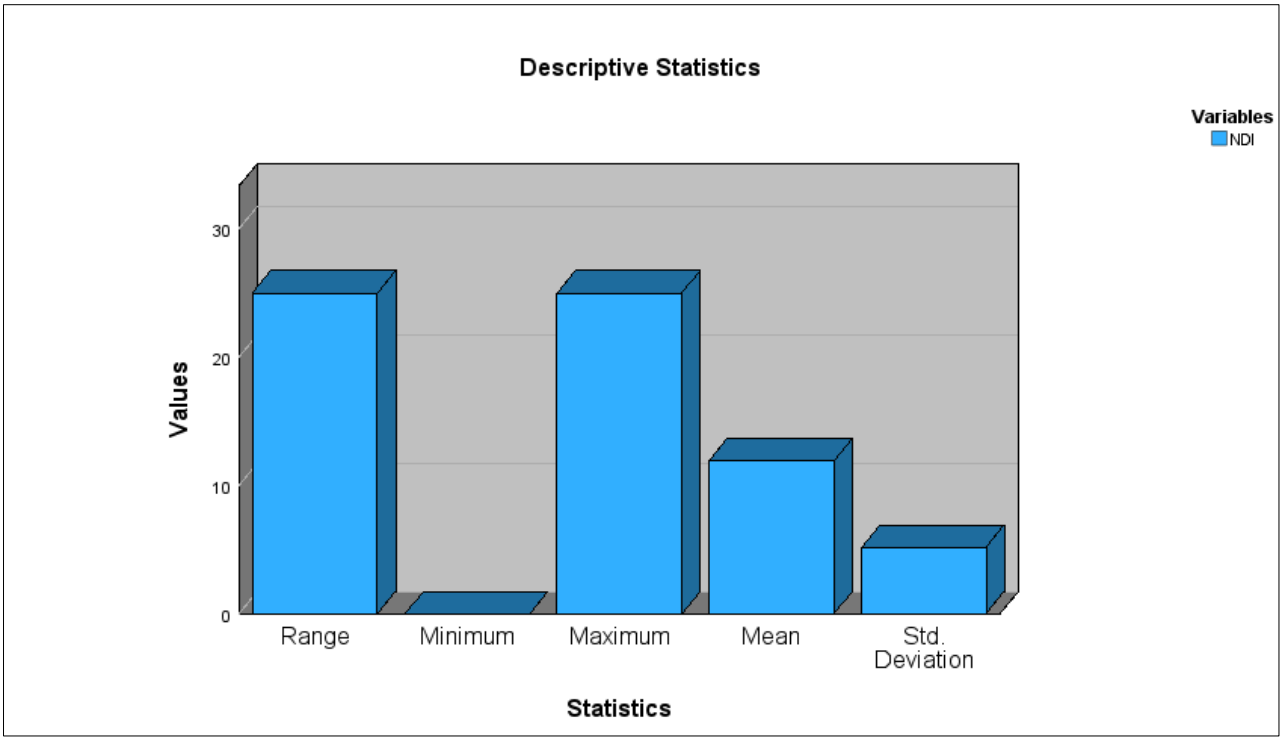
DESCRIPTIVE STATISTICS OF GENDER

GENDER					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Female	82	82.0	82.0	82.0
	Male	18	18.0	18.0	100.0
	Total	100	100.0	100.0	



DESCRIPTIVE STATISTICS OF OUTCOME MEASURE: NECK DISABILITY INDEX (NDI)
Descriptive Statistics

NDI Descriptive Statistics						
	N	**Range**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
NDI	100	25	0	25	11.96	5.179
Valid N (list wise)	100					



Graph 3: Descriptive statistic of Neck Disability Index.

Table 1: Descriptive Statistics of Outcome Measure: Smartphone Addiction Scale-Short Version (SAS-SV)

Descriptive Statistics						
	N	**Range**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
SAS	100	39	11	50	27.71	9.911
Valid N (list wise)	100					

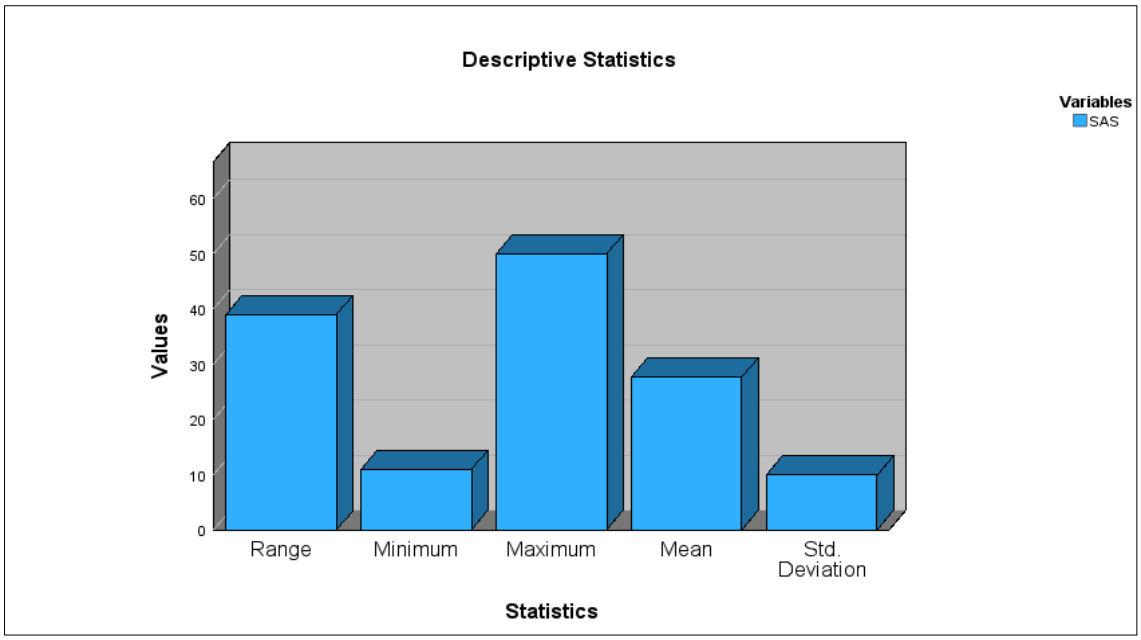
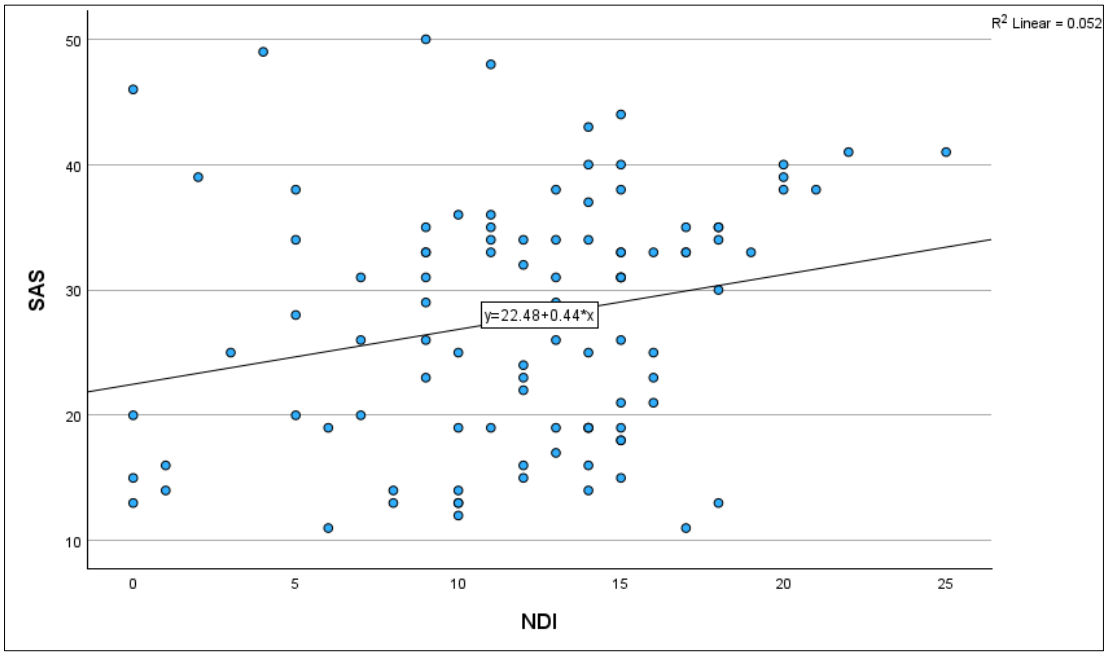


Table 2: Correlation between Smartphone Addiction Scale-Short Version (Sas-Sv) and Neck Disability Index (NDI)

Correlations			
		NDI	SAS
NDI	Pearson Correlation	1	.229*
	Sig. (2-tailed)		.022
	N	100	100
SAS	Pearson Correlation	.229*	1
	Sig. (2-tailed)	.022	
	N	100	100
*. Correlation is significant at the 0.05 level (2-tailed).			

Pearson's correlation between Smartphone Addiction Scale-Short Version (SAS-SV) and Neck Disability Index (NDI) significant score at 0.05 level.



Correlation between NDI and SAS-SV.

DISSCUSSION

In present study, we found that only 4% of participants did not have any neck discomfort. 29% of the participants had mild discomfort, 64% had moderate and 7% were severely affected.

Pearson's correlation was established between NDI and SAS-SV. A significant positive correlation was established (Pearson's correlation is significant at 0.05 level) between these two variables which are in line with previous study conducted by Sami S. *et al*., 2017. According to their study the result showed a clear association between addiction to smartphone use and various degrees of neck problems among the participants.

Another study conducted by Suresh A *et al*., also concluded that there was a moderate positive correlation (r=0.682) between smartphone addiction and neck pain and neck disability in university students and the level of significance was ($p<0.01$) [7]. Although, the study methodology for this study and ours is different, the result for both the studies concluded a positive correlation between the two variables. The sample size for both the studies were 100 students but the male is to female ratio were different in both.

With the increased advantages they offer people, smartphones have become an indispensable component of daily life. But in addition to these, smartphone addiction, which can arise from overuse, is a problem that needs to be seriously addressed [3].

The scores of NDI categorised the subjects into no disability, mild disability, moderate disability, and severe disability. Out of 100 samples that were analysed, 55% were under the no addiction category, the remaining 45% either were under the high risk or addicted to smartphone category which is quite alarming in occupational therapy students. This study revealed that there was no student in this sample without a smartphone, as they adopt a flexed spinal posture while texting on smartphones, their use of posture exacerbates their disability. This position is discovered to be the most typical one that causes neck pain [7].

CONCLUSION

This study concludes that excessive smartphone use among yound adults is associated with increased neck discomfort and disability, as a correlation was found between smartphone addiction and neck-related functional limitations. The findings suggest that poor posture and prolonged mobile device usage may contribute to musculoskeletal issues, particularly affecting the neck.

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