International Journal of Health Sciences and Research
DOI: https://doi.org/10.52403/ijhsr.20210907
Vol.11; Issue: 9; September 2021
Website: www.ijhsr.org
Original Research Article *ISSN: 2249-9571*

A Study to Assess the Prevalence of Text Neck Syndrome and Quality of Sleep among Smartphone Users in Selected Colleges of District Ludhiana, Punjab

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ABSTRACT

Background of Study: Text neck syndrome is an important health issues especially in developing Countries. Text Neck refers to repetitive stress injury resulted from excessive watching, texting or overusing hand held devices in a forward head posture for a long period of time. The prevalence of smartphone users worldwide will be around 2.5 billion by 2019. In 2019, the smartphone users in India are estimated to hit 340 million. However, the health effects of mobile phone usage were various on mental and physical health system, but the problem out of which cervical, neck pain and insomnia was most commonly reported.
Objectives: To assess the prevalence of Text Neck Syndrome and Quality of Sleep among smartphone users in selected colleges of District Ludhiana, Punjab.
Material and Methods: A descriptive research design was used. Purposive sampling technique was used to select 400 smartphone users. Data was gathered by using standardized tool for text neck syndrome i.e. Neck Disability Index and Pittsburgh Sleep Quality Index to assess quality of sleep. Data was analyzed by using descriptive and inferential statistics.
Results: The results of study showed that nearly half of the smartphone users 151(37.8%) had mild neck disability and (53.75%) subjects had good sleep quality whereas (46.25%) poor sleep quality. There was a statistical significant association of the text neck syndrome with sociodemographic variable habitat of smart phone users and association of sleep quality with habitat, socioeconomic status and academic course.
Conclusion: The study findings revealed that nearly 37.8% had mild neck disability and (53.75%) subjects had good sleep quality among smartphone users and was significantly associated with habitat.

Keywords: Text neck syndrome, Quality of Sleep, smartphone users, repetitive stress injury

INTRODUCTION

The prevalence of smartphone users worldwide surpasses 3.2 billion by 2019. China (851.15) and India (345.92) ranked as first and second as per the number of smartphone users.

Text Neck Syndrome refers to repetitive stress injury resulted from excessive watching, texting or overusing hand held devices in a forward head posture for a long period of time.

As per the reports of research studies about health effects of mobile phone usage were various on mental and physical health system, but the problem out of which neck pain(73.8%), ringing in ears (72.93%),

headache (64.63%) and sleeping disorders (58.52%) was most commonly reported

Poor sleep quality is affecting10% to 50% of smart phone users. Poor sleep quality consequences are many and have a profound impact on the smartphone users' physical and psychological health.

MATERIAL & METHODS

A descriptive research design was used to assess prevalence of text neck syndrome among 400 smart phone users selected by purposive sampling technique. The sample size was calculated. The inclusion criteria for smart phone users was falling in the age group of 18-25 years, using smartphone more than one hour a day, able to understand the English language. The exclusion criteria for smart phone users who had any congenital, traumatic & pathological cervical diagnosed health problem. Data was collected from smart phone users by self report method after getting ethical permission from Dayanand Medical College Hospital as well as Principals of respective colleges from Satish Chander Dhawan (SCD) Government College and Arya College, Civil lines Ludhiana, Punjab with standardized tool developed by Dr. Howard (1980) for measuring self-rated disability due to neck pain and how it had affected the everyday activities of smart phone users and Pittsburgh Sleep Quality index (PSQI, 1988) to assess Quality of sleep. Data was analyzed by using descriptive and inferential statistics as per objectives of study.

RESULTS

As per socio demographic characteristics the majority of 89.2% smartphone users were in the age group of 18-21 years, 68.2% were male, more than half 54.8% were commerce students, maximum 73.2% smart phone users live in the urban area,70% smart phone users belong to Hindu religion 70%.

61.5% of smart phone users were from nuclear family, 98.2% smart phone users lives at home. As per socio-economic status more than half 62.2% of the smart phone users were from middle class family.

Table1: Frequency & percentage Distribution of smartphone user as per their smart phone usage profile, N=400

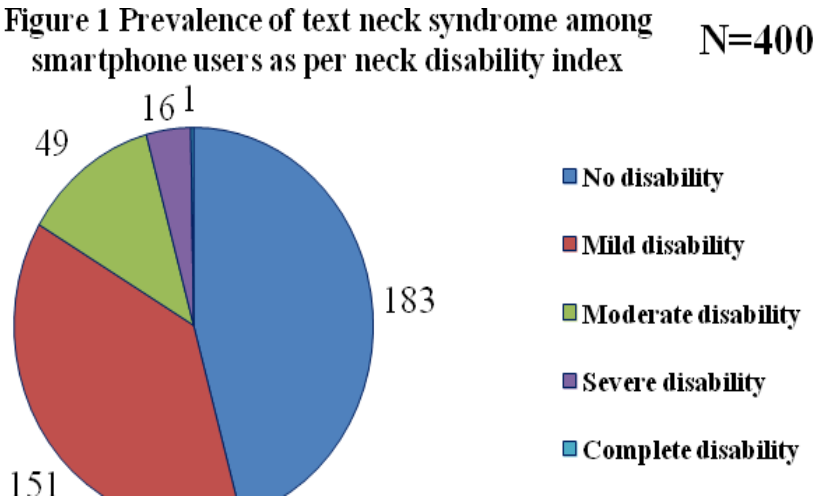
Sr No.	Smartphone Usage Profile	f (%)
1.	Smartphone usage hours	
	1-2	145(36.2)
	3-4	151(37.8)
	5-6	63(15.8)
	>6	41(10.2)
	Mean ± SD= 2.00±096	
2.	Common application used in smartphone	
	Searching	211 (52.8)
	Games	88 (22.0)
	Academic	24 (6.0)
	Scientific	22 (5.5)
	Others	55 (13.8)
3.	Common mode of communication	
	Texting	211(52.8)
	Video chatting	88 (22.0)
	Phone calling	24 (6.0)
	Others	77(19.2)
4.	Posture use while using smartphone	
	Flexed neck	73 (18.2)
	Standing	16 (4.0)
	Sitting	218 (54.5)
	Lying	93 (23.2)
5.	Hours spend on smartphone other than calls (In Hours)	
	<1	172(43.0)
	1-2	129 (32.2)
	3-4	73 (18.2)
	>4	26 (6.5)
	Mean ± SD=1.88±0.92	
6.	Experienced neck & shoulder pain while using smartphone	
	No	188 (47.0)
	I don't know	41 (10.2)
	Just happen sometime	156 (39.0)
	It is continue	15 (3.8)
7.	Taking break while using smartphone	
	No break	72(18.0)
	Break every 20 minutes	104(26.0)
	Break every 30 minutes	92(23.0)
	Break every 1 hour	132(33.0)
8.	Hours sleep during the day	
	<1	118(29.5)
	1-2	129(32.25)
	3-4	64(16.0)
	>4	89(22.25)
9.	Using mobile phone at bed time in night	
	Yes	273(68.2)
	No	127(31.7)
	If, yes how many hours using smartphone (n=273)*	
	1 hour	197(49.2)
	2-3 hours	53(13.2)
	3-4 hours	13(3.2)
	>4 hours	10(2.5)
10.	Time taken by you to fall asleep	
	<15 minutes	201(50.2)
	16-30 minutes	129(32.2)
	31-60 minutes	48(12.0)
	>60 minutes	22(5.5)
11.	Checking smartphone during sleep	
	Yes	127(31.8)
	No	273(68.2)

Table 1 interprets smartphone usage profile (37.8%) smartphone users uses for 3-

4 hours for searching, (52.8%) Half of the students used texting as a mode of communication, (52.8%) in sitting posture (54.5%), (43%) smartphone users spend less than 1 hour on smartphone other than calls. (68.2%) maximum number of smartphone users were using smartphone at bedtime in night for 1 hour (49.2%) and more than half of the smartphone users (68.2%) do not check their smart phone during sleep.

Table 2 Prevalence of text neck syndrome among smartphone users as per neck disability index, N=400

Sr. no.	Neck Disability	f (%)
1	Present	217(54.25)
2	Absent	183(45.8)



** Mean ±SD=7.33±7.34*

Figure 1 illustrates that 183(45.8%) smart phone users had no neck disability, followed by 151 (37.8%) mild disability, 49 (12.2%) moderate, 16(4%) severe disability and only 1 (0.2%) smart phone user reported with complete neck disability.

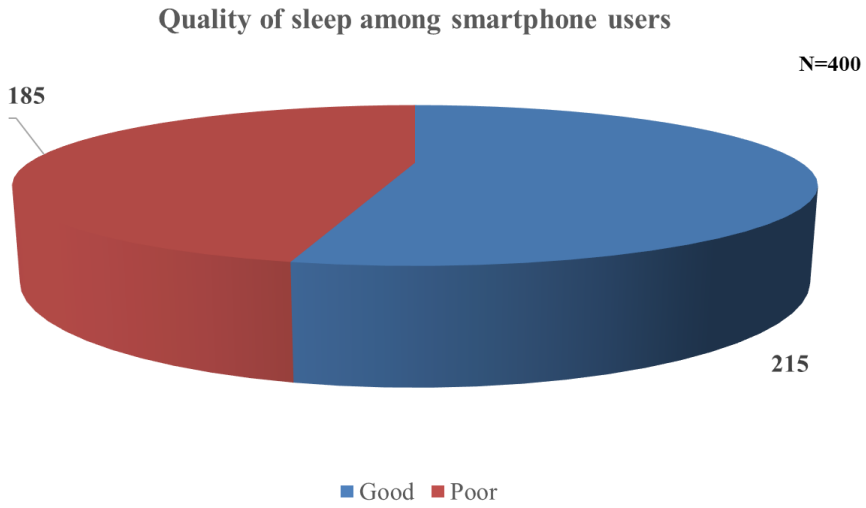


Fig 2: Quality of sleep among smartphone users as per Pittsburgh sleep quality index.

Table 2 Clarify that there was significant association of text neck syndrome with habitat of smart phone users.

Table 2 Association of text neck syndrome with selected sociodemographic characteristics among smart phone users, N=400

Sr. No	Socio-demographic characteristics	n	Mean ±SD	t/F value	p value
1.	Age(in years)				
	18-21	357	7.43±7.50	0.788	0.375NS
	22-25	43	43±6.37		
2.	Gender				
	Male	273	7.01±7.27	1.651	0.200NS
	Female	127	7.97±7.50		
4.	Habitat				
	Rural	107	9.38±9.39	29.545	0.000*
	Urban	292	6.57±6.30		
3.	Academic course				
	Medical	37	9.86±9.67		
	Non-medical	22	9.00±7.73	2.207	0.087NS
	Commerce	219	6.94±7.12		
	Arts	122	6.90±6.74		
5.	Type of family				
	Joint	154	7.78±7.83	1.807	0.180NS
	Nuclear	246	7.02±7.02		
6.	Student residential status				
	Home	391	7.35±7.38	0.565	0.453NS
	PG	7	6.29±6.23		
7.	Religion				
	Sikh	108	8.19±8.39	1.457	0.215NS
	Muslim	9	11.56±7.76		
	Hindu	280	6.86±6.88		
	Christian	1	5.00±.		
	Others	2	5.50±3.53		
8.	Socio-economic status(Kuppuswamy's scale 2019)				
	Upper-class I	46	6.93±7.34	0.753	0.557NS
	Upper middle class II	55	7.47±6.80		
	Middle class III	249	7.35±7.45		
	Lower middle class IV	40	8.20±8.10		
	Lower class V	10	3.80±3.85		

Table3: Association of quality of sleep with selected socio-demographic characteristics among smartphone users. N=400

Sr. No	Socio-demographic characteristics	n	Mean ±SD	t/F value	p value
1.	Age(in years)				
	18-21	357	4.92±3.030	0.197	0.657NS
	22-25	43	4.70±3.181		
2.	Gender				
	Male	273	4.70±3.077	0.180	0.672NS
	Female	127	5.30±2.942		
3.	Academic course				
	Medical	37	6.08±4.304		
	Non- medical	22	5.64±2.821	2.815	0.039*
	Commerce	219	4.66±2.734		
	Arts	122	4.82±3,091		
4.	Habitat				
	Rural	107	5.82±3.916	35.592	0.000*
	Urban	293	4.54±2.577		
5.	Type of the family				
	Joint	154	5.08±3.148	0.990	0.320NS
	Nuclear	246	4.77±2.977		
6.	Student residential status				
	Home	391	4.90±3.031	1.507	0.220NS
	PG	9	4.57±4.077		
7.	Religion				
	Sikh	108	5.68±3.312		
	Muslim	280	5.44±2.698	3.108	0.015*
	Hindu	9	4.60±2.903		
	Christian	3	2.50±0.707		
8.	Socio-economic status (As per Kuppuswamy scale 2019)				
	Upper-class I	46	4.33±3.334	2.837	0.024*
	Upper-middle class II	55	5.07±2.356		
	Middle class III	249	4.89±2.950		
	Lower middle class IV	40	4.88±3.864		
	Lower class V	10	2.70±2.406		

NS non significant
**Significant (p<0.05)*

Table 3 interprets that there was significant association of quality of sleep with socio-demographic characteristics like habitat, religion, academic course and economic status of smartphone users

DISCUSSION

The finding of present study revealed that out of 400 smartphone users most of the smartphone users 151(37.8%) had mild disability followed by moderate disability 49(12.2%).Similar results that (48%) physiotherapy students had mild neck disability were reported by Shah PP, Sheth MS (2018) conducted a study on prevalence of text neck syndrome and SMS thumb among physiotherapy students in Gujarat.

Samuel John Asir, Pokhral Nikita, Akter Rahemun, Sohel Ahmed (2019) reported in their research study that (46.9%) college students had pain in their neck, (42.5%) subjects were having mild to severe disability in their neck due to smartphone.

Omar Samarah, Mohamad Yasin, Tareq Kanaan (2019) conducted a study on association between mobile phone use and neck pain among university students the results of study interpreted that neck pain severity showed that age ($p = 0.04$) and duration of use ($p = 0.001$) were significantly associated with the severity of neck pain, while only the duration of use was significantly associated with pain duration ($p = 0.036$). Subjects were divided into two groups according to the pain score, 75.8% had pain severity equal or less than 4/10 and 24.2% had pain severity more than 4/10. Of those with pain severity >4, 5.8% of students sought medical help at the emergency department and 12.4% visited clinics, compared to only 0.3% seeking medical advice at an emergency department and 4.2% visiting clinics in the group with pain severity of ≤4 ($p<0.001$).

In Present study results it was revealed that out of 400 students (53.75%) had good sleep quality and (46.25%) had poor sleep quality. Whereas Similar results were reported by a study on the effect of smartphone usage at bedtime on sleep quality among Saudi Non- Medical staff at King Saudi University by Fahdah A Alshobaili, Nada A Yousefi. in 2019 that (41.7%) of participants have poor quality of sleep due to usage of smartphone.

In current study it was found that there was significant association of sleep quality with habitat, socioeconomic status and academic course. On the other hand contrary results were reported by study Ghoreishi et al. (2018) on university medical students. Results revealed that there is no significant association of quality of sleep with socioeconomic status, habitat.

CONCLUSION

The study findings revealed that nearly 37.8% had mild neck disability among smartphone users. Near to half (46.25%) had poor quality of sleep The results of study revealed that the mobile phone users experience subjective symptoms, the intensity of which depends upon intensity of use of mobile phones. We recommend to minimize its adverse effect by use of hand free devices, maintaining proper posture while texting and avoiding use of mobile phone during sleep.

ACKNOWLEDGMENT

We are thankful to Dayanand Medical College Hospital College of Nursing for believing in us to conduct this research study with their due ethical consideration as well as Principals of respective colleges from Satish Chander Dhawan (SCD) Government College and Arya College, Civil lines Ludhiana, Punjab as well as their students who were part of this study for giving us consent to give their valuable time and research related required information.

Conflict of Interest: None

Source of Funding: None

Ethical Approval: Approved

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How to cite this article: Kaur A, Makker S. A study to assess the prevalence of text neck syndrome and quality of sleep among smartphone users in selected colleges of district Ludhiana, Punjab. *Int J Health Sci Res.* 2021; 11(9): 49-54. DOI: *https://doi.org/10.52403/ijhsr.20210907*

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