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PREVALENCE OF NECK PAIN AMONG MEDICAL STUDENTS DUE TO MOBILE USE DURING PANDEMIC ERA

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HIGHLIGHTS

- Neck pain is a significant health problem among medical students during this pandemic period as they use mobile phone almost all of their time. Neck pain is a crucial public health issue in our society.
- This study was a cross-sectional study using a convenient sampling technique. After meeting the inclusion and exclusion criteria, 200 participants were recruited.
- There is mild to moderate neck/shoulder pain and limited activities of daily living in medical students. There is no association between gender and pain intensity in the neck and shoulder of the participants.

ABSTRACT

Background: Neck pain is a significant health problem among medical students during this pandemic period as they use mobile phone almost all of their time. Neck pain is a crucial public health issue in our society. It can occur in any structures of the neck, i.e., disc, muscles, spinal nerves, and joints.

Objective: This study aimed to check the prevalence of neck pain among mobile users during pandemic era.

Material and Methods: This cross-sectional study was conducted on 200 participants from Punjab Medical College Faisalabad using a convenient sampling technique. Medical students of the age group of 18-26 years with their mobile phone and having diagnosed neck pain due to mobile usage are included, while those participants who have performed any previous neck or shoulder surgery were excluded. For data collection participants completed The neck disability index questionnaire which is designed to check how neck pain affects the ability to manage routine life activities. Written consent was taken and the importance of the study was explained before filling the questionnaires. The chi-square test has been used to check the association between gender and pain intensity in the neck and shoulder of the participants. Prevalence of the neck pain with other variables presented in the neck disability index questionnaire had been calculated as frequency and percentages.

Results: The results showed a high prevalence of neck pain among medical students due to mobile use which is 73%. The data analysis showed p-value 0.279 for gender and neck pain intensity, which means that there was no association between variables. The chi-square test has been used to test the association between gender and pain intensity.

Conclusion: There is mild to moderate

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neck/shoulder pain and limited activities of daily living in medical students. There is no association between gender and pain intensity in the neck and shoulder of the participants.
Keywords: neck pain, mobile phone, forward head posture, radiating pain, headache, text neck
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INTRODUCTION

During the pandemic period, there is a dramatic decrease in activities that causes an increase in smartphone usage rate and ultimately leads to neck pain. It can occur in any structure of the neck, i.e., disc, muscles, spinal nerves, and joints. Having clinical symptoms without systematic illness is termed "musculoskeletal neck pain."[1]

Electronic gadgets have become very common among all populations irrespective of age and gender.[2] Despite hazardous effects the habitual use of smart phones has heightened severely specifically from the moment they have become economical and access is easy all over the world. Availability of smart phones has increased day by day, with more than 3 billion people using mobile.[3]

Severe usage of this device may badly affect the health of the individual.[4] The immoderate usage of mobile phones is reported to have a bad influence on our health it may cause an increase in anxiety and stress levels.[5] Excessive usage of mobile phones may impair the attention of the visual field and may also cause the growth of tumors in the brain.[6] Sleeping problems may lead to tiredness, fatigue, and lack of energy during the early morning.[7] It reported that severe use of the mobile phone at late night by teenagers may lead to irritability, mood swings, personality disturbances and many other issues.[8]

Pain-related issues that affect the neck, shoulder, upper back, and arms are common in different population groups. The presence of head and neck symptoms in conjunction with mobile phone usage has been described but is rare.[9] Few researchers have suggested that intense smartphone usage leads to the adoption of poor neck posture or the development of MSK symptoms.[10]

Berolo wells and Amick had surveyed the Canadian university population and reported that the frequency and duration of mobile phone usage and handheld devices were linked to the prevalence of neck pain.[11] This flexed posture may increase moment of cervical and produce muscle strain in surrounding structures of cervical spine. Though the use of smart phone is linked with causative factors of neck pain or musculoskeletal problems.[12]

Mostly people without symptoms adopt forward head position when using VDT, that's why it is concluded that mobile phone users have more neck pain because they use no neutral neck position than asymptomatic.[13] The studies showed that cervical spine of adults with mild neck pain have more flexed position as compared to asymptomatic adults during mobile phone usage.[14]

Text neck is a worldwide problem and the term of text neck or another phrase turtle next posture can be defined as continuous stress injury and pain remain constant for excessive watching and using hand held devices for prolonged period.[15]

Text neck may cause various serious symptoms like neck pain, upper back pain, headache, shoulder pain, chronic other problems and increased spine curvature.[16]

Text neck affects the spine when head is position forward at different degrees. This problem is

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prime factor with children because their head are larger as compared to their body size than adults, and thus they have more chances of developing text neck.[17] Serious chronic damage of text neck can be the end result and may similar to occupational overuse syndrome or repeated stress injuries.[18] Health applications collect or deliver data about health care, some applications are designed for workers of healthcare but many more are designed for patients.[19,20] In this context, during pandemic era, due to over usage of mobile phone, neck pain and its associated problems have been increased.

MATERIALS AND METHODS

This study was a cross-sectional study using a convenient sampling technique. After meeting the inclusion and exclusion criteria, 200 participants were recruited. The data collection procedure started after taking a permission letter from the college of physical therapy Government College University of Faisalabad. The participants from age 18 to 26 years filled the online questionnaire. Those suffering from neck pain due to mobile use during the pandemic era were allowed to fill the questionnaire. The questionnaire was used to assess the intensity of pain and its effect on their life. The participants were assured that their information remain private. Medical students of age 18-26 years with their own mobile phone, students who use their phones more than 3 or 4 hours daily, having diagnosed neck pain due to usage of their mobile phones during pandemic era were included in the study.

Participants who have performed any previous neck or shoulder surgeries, having neurological disorders and systemic illnesses, any psychological disorder (depression, anxiety, bipolar disorder) or participants with spinal deformity or any congenital abnormalities were excluded from this study.

After initial report writing and after selection of the neck disability index (NDI) questionnaire, data were collected from those participants. After data collection, the results were analyzed by using SPSS-23. Data analysis has been carried out for all variables which were mentioned in the NDI questionnaire, frequency distribution of each variable along with its tabulation and graphical distribution has been deducted from the NDI questionnaire. Along with it, the prevalence of neck pain has also been calculated. The chi-square test has been used to test the dependability of two key variables in our analysis. Prevalence of the neck pain with other variables present in the NDI questionnaire has been calculated as frequency and percentages.

RESULTS

The study had a total of 200 participants out of which 70.5% were males and 29.5% were female respondents. The age of the participants in this study were 75.7% participants in the age group of 18-20 years, 17% in the age of 21-23 years, and 7.5% in the age of 24-26 years (Table I). The results showed that there was a high prevalence of neck pain among medical students due to mobile use of the PMC Faisalabad, which was 73% and there was no association between gender and pain intensity in the neck and shoulder of the participants. The data analysis showed that p=0.279 for neck pain intensity and gender which means that there was no association between variables.

This showed that the frequency of pain intensity in neck and shoulder of the participants in which 54 (27%) people had no pain at the moment, 41 (20.5%) had mild pain, 51 (25.5%) suffer from moderate pain, 17 (8.5%) had moderate pain without variation, 34 (17%) people had severe pain that comes and go with time, and 3 (1.5%) had severe pain without variation (Figure I).

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The degree of freedom in the given chi-square test is 5 and the Pearson chi-square value is given in table IV. The chi-square test showed that the p-value was equal to 0.279. In this case, the 5% confidence interval consideration showed that p>0.05. The null hypothesis would be accepted which tells that there was no association between gender and pain intensity. This graph shows that there was no association between Gender and Pain intensity in the neck and shoulder of the responders (Figure II).

Table I: Age of the Participants

Age (years)	Frequency	Percent
18-20	151	75.5
21-23	34	17.0
24-26	15	7.5
Total	200	100.0

Table II: Gender Distribution of Participants

Gender	Frequency	Percent
Male	59	29.5
Female	141	70.5
Total	200	100.0

Figure I: Pain intensity in Neck or Shoulder

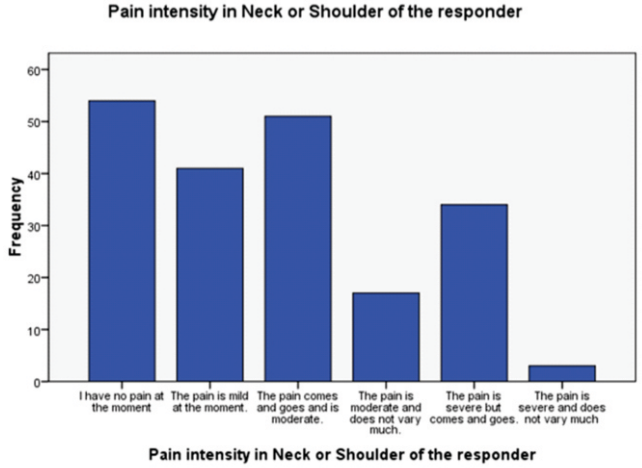

Table III: Association Between Gender and Pain intensity in Neck and Shoulder

Gender	Pain intensity in Neck and Shoulder of the responders						Total
	No pain	Mild pain	Moderate pain	Moderate pain that does not vary much	Severe pain that comes and goes	Severe pain that does not vary much	
Male	14	14	12	8	9	2	59
Female	40	27	39	9	25	1	141
Total	54	41	51	17	34	3	200

Table IV: Chi-square Test

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.294[a]	5	.279
Likelihood Ratio	5.900	5	.316
Linear-by-Linear Association	.439	1	.507

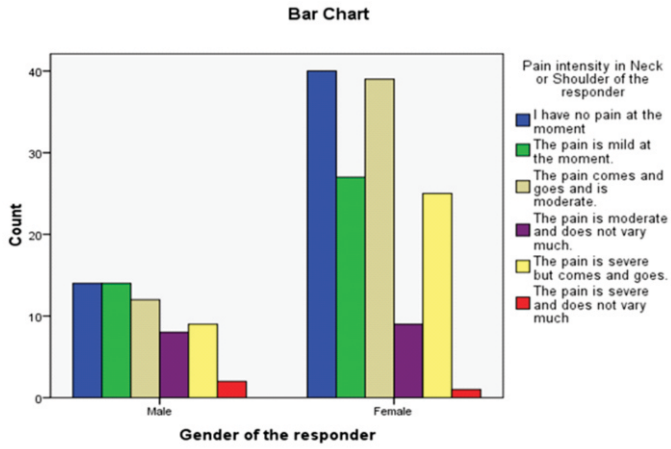

Figure II: Association Between Gender and Pain Intensity

DISCUSSION

The main focus of study was to find the prevalence of neck pain in mobile users during pandemic era among population of Faisalabad. This study assessed the prevalence of neck pain in those people who use more mobile phone in this pandemic time period. Findings of this research showed that their demographic statistics were 75.7% participants in age group of 18-20 years, 17% in age of 21-23 year, 7.5% in age of 24-26 years. This showed that greater

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population is among age group of 18-20 years in Faisalabad. Pain intensity in neck and shoulder was measured as 17% population have severe pain intensity while 25.5% were having moderate intensity which is interpreted as a large proportion of population. About 29.5% participants were males and there were 70.5% female students. At present, females were the dominant part. In this study, the pain intensity in neck or shoulder descriptive statistics showed that 27% people had no pain at the moment, 20.5% had mild pain at the moment and 25.5% suffer from moderate pain. Pain intensity in neck or shoulder descriptive statistics shows that 8.5% go for moderate pain without variation, 17% had severe pain with movement and 1.5% had severe pain without variation.

Smartphone users are more likely to experience musculoskeletal pain in the range of 1% to 67.8%. With a prevalence of 17.3% to 67.8%, pain in the neck is the most frequent musculoskeletal condition among smartphone users.[21] Those who use smartphones frequently reported more neck pain.[22] The amount of time spent using a smartphone, particularly long sessions and multitasking activities, is related to neck pain.[23]

In this study, 25.5% of the medical students who participated in the survey had text neck syndrome. Studies by Jourdan revealed similar prevalence rates (65%),[24] Saudi Arabia (68.1%, 44.8%),[25,26] South Africa (66.2%).[27] However, our finding is significantly higher than that reported in Ethiopia (49.2%),[28] Pakistan (43.6%),[29] Brazil (55.44%).[30]

In order to connect with students, many educational institutions, including universities, increasingly depend on the internet. They do this by using email or social media platforms like whatsApp. Information about educational resources, assignments, and curricular recommendations is distributed online. Therefore, rather than using more traditional devices like laptops and desktops, students found it simple to handle a little and smart device that fits all of his or her educational and recreational needs. Additionally, the majority of our responders (49.5%) reported having "mild neck disability."[31]

As students spent a lot of time in studying in abnormal postures and with other underlying issues like weakened core muscles, no postural awareness this problem is exaggerated, and it causes burden on health care system as well as on educational system. Ergonomic improvements in the postures of study can decrease the prevalence of neck pain among population.

CONCLUSION

The prevalence of neck pain among medical students due to mobile use was found to be significant (25.5%) but consistent with several local and global results. The descriptive statistics shows mild to moderate neck/shoulder pain and limited ADLs observed in medical students. There is no association between gender and pain intensity in the neck and shoulder of the participants.

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