

Frequency of Neck and Back Pain in Young and Middle Aged Adults of Islamabad and Rawalpindi Due to Usage of Electronic Gadgets during COVID-19 Quarantine

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Abstract

Background: Electronic gadget usage has always been one of the root cause of back and neck torment. During COVID-19 quarantine there was increased screen time due to online working.

Objective: To determine the frequency of Neck and Back pain in young and middle aged adults due to usage of electronic gadgets during COVID -19 quarantine.

Design: A cross-sectional study design.

Methods: A total number of 260 participants living in the twin cities of Islamabad and Rawalpindi. Data was collected through an online self-structured questionnaire which included, ten general questions in which participants were asked questions regarding the frequently opted posture during laptop/cellphones use. History of onset of neck and back pain were asked and two scales i-e. Neck Disability Index (NDI) and Oswestry Disability Index (ODI) were availed to evaluate the functional limitation related to pain among people with neck pain and low back pain and Body Mass Index were evaluated in these participants.

Results: The results showed that 30.8% participants used laptop/cell phones for 6 to 8 hours while 3.5% spend time on laptop or computers for more than 8 hours. 34.2% people had neck pain during COVID-19 quarantine and 39.2% people have experienced back pain during COVID-19 quarantine.

Conclusion: This study showed that most of the participants suffered from severe neck and back pain before the inception of quarantine while a small amount of population suffered from neck and back pain during the COVID-19 quarantine.

Keywords: Neck pain; Back pain; Young adults; Middle adults; Gadgets; Quarantine

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Introduction

Coronavirus disease 2019 (COVID-19) is spawned by a novel viral agent which promulgated rapidly around the globe. The virus promulgate rapidly among pupils with close contact, cough and sneeze. COVID-19 is an expeditiously evolving condition that has been categorized as pandemic by the WHO [1].

A huge number of measures have been taken to halt the constructive activities to decelerate the spread of this disease among different countries [2]. To ensure the safety of people

Quarantine has been announced worldwide. All the academic and office activities are performed online which has led to increased screen time for general population. Low back and neck pain have a positive correlation with the intensity of gadget use and age [3]. Gadget usage is a more critical area of concern in the present era. The term "Gadget" refers to the portable electronic devices. Continuous use of gadget leads to many reported health problems like backache, finger pain sleep disturbances and neck pain. Depending on the amount of time spent on gadget (duration and frequency) [4]. During quarantine adults use more gadgets

due to online classes, office works have more workload due to incorrect posture adults complain of neck and back pain. The negative impact of smartphone uses for adults makes them lazy and due to sedentary lifestyle in quarantine and more workload it causes neck pain [5].

Neck and back pain are prevalently seen ailments in clinical practice. Our busy lifestyle leaves less time for our own care. Exercise is considered a fancy activity for most of the people. According to a research about 70 percent of adults have suffered from back or neck pain at least once in their lives which resulted in more than fifteen million outpatient physician visits for back pain within a year [6]. Now a days as everyone is stuck in their homes. The level of physical activity has reduced. They are spending more time on their cell phones, laptops, tablets, and computers to do most of their work and pass their time. They have become lazier and this laziness leads to a lot of musculoskeletal problems most common of these are neck and back pain.

Reduced physical activity is seen as a major risk factor for the development of chronic LBP. Teens who are physically less active are at a higher risk and more prone to suffering from LBP [7]. Neck and back pain can abate the quality of life by disabling the person to perform their activities of daily life with complete strength and potential. Physical activity is considered a key ailment in reduction of low back pain [8].

Research Methodology

Study design

A cross-sectional study design was used to find out the frequency of back and neck pain in young and middle aged adults (18-55) due to usage of electronic gadgets during COVID 19 quarantine days. The duration of this study was 3 months commencing from March 1, 2020 to July 31, 2020. Study was conducted in twin cities of Islamabad and Rawalpindi through online survey. Sample size was calculated through RAOSOFT software which was 260, population size was 795 and response distribution is 50%. Purposive sampling technique was used to collect the data. Participant's data including age, gender, BMI, gender, ODI and NDI scores were added manually in data collection sheet.

Sample selection

a) Inclusion criteria

- People who use electric gadgets mostly.
- People who are 18 to 55 years old (Young and middle aged adults).
- People who spend most of the time in sitting (2 to 8 hours).

a) Exclusion criteria

- People who had low back pain and neck pain before the pandemic.
- People who are beyond of our age limit. (Less than 18 and greater than 55 years.)
- People who are doing physical activity daily.

Data collection instrument(s)

We have used two instruments in our questionnaire they are Neck Disability Index (NDI) and Oswestry Disability Index Scale.

The Neck Disability Index scale is a variation of Oswestry Disability Index. It is a ten-item scaled examination form used for people with neck or upper back pain or injury. Its reliability is 0.89, validity 0.70 and probability is ≤ 0.05 [9]. The scale has 10 items each of them scored from 0 to 5 it asks about pain, personal care, lifting, reading, headaches, concentration, work, driving, sleeping and recreation. Each section score 0-5, zero indicate no pain while five indicate severe pain. Total score is 50, in which zero indicates no disability while 50 means severe disability. It takes 5 to 10 minutes to complete this test. The scoring distribution is 0 to 4 means no disability, 5 to 14 means there is mild disability, 15 to 24 is moderate disability, 25-34 is severe disability and 35 to 50 points indicates complete disability [10].

Oswestry Disability Index is a very effective scale to measure spinal disorders. This scale is most commonly used by physiotherapist. It is an easy scale to assess the issues of low back and yet has high reliability and constructs validity. Its intra-class correlation coefficient for test retest reliability of 0.99 [11]. The validity coefficient is 0.65 [12]. The scoring criteria is as follows; The form includes 10 topics in which pain intensity, lifting, ability to care for oneself, walk ability, sitting ability, sexual function, standing ability, social life, quality of sleep, and traveling ability is evaluated. Every topic includes categorization of 6 questions related to the topic; the patient selects the most suitable option from these questions. Scoring is done on scale from zero to five in which the first statement is scored 0 which shows minor functional limitation while last is scored 5 which shows severe functional limitation. Total scoring is measured by adding the answers and multiplying with 2 so that an index range of zero to hundred can be obtained. Zero means no functional limitation is present while hundred means the person is having severe functional limitation [13].

Data collection procedure

The adults were selected through purposive sampling. Firstly the purpose and the procedure were explained to the target population of adults in easy and native language so there is clear understanding about the study after which an informed consent was signed by the adults agreeing with us to give information. Adults were ensured that all the information would be kept confidential and privacy will be maintained. The questionnaire was then distributed among the adults and the questionnaire was filled by parents. Later the score of Neck Disability Index and Oswestry Disability Index scale were interpreted and enlisted.

Results

The survey included a total number of 260 participants in the study. The mean age was 23.6+-3.4. In which 230 (78.1%) were female participants and 57 (21.9%) were male participant. The descriptive results of our data showed that, 30.8% participants spend time on laptop/computers for 6-8 hours per day during COVID-19 quarantine while 3.5% spend more than 8 hours per

days on their laptop/computers. 34.2% had neck pain during COVID-19 quarantine and 39.2% people have experienced back pain during COVID-19 quarantine 50.9% participants said that they sit with support while using gadgets and 31.5% said that they prefer lying position.

Neck Disability Index (NDI)

The neck disability index (NDI) score which was used to assess their activities showed that 50% of the participants had mild functional limitation due to neck pain, 30% of participants had moderate and 8.5% participants had severe functional limitation because of neck pain.

Oswestry Disability Index (ODI)

The Oswestry disability index (ODI) score which is used for back pain showed 58.8% participants had mild functional limitation due to back pain, 18.5% participants had moderate functional limitation and 1.5% participants had severe functional limitation due to back pain.

Discussion

The study was cross-sectional survey which was conducted to determine the frequency of neck and back pain in young and middle aged due to usage of electronic gadgets during COVID 19 quarantine. NDI and ODI were utilized to collect statistical information regarding the occurrence of neck and low back ache. Scores were interpreted and analyzed and showed that neck and back pain cause mild disability during quarantine.

This study showed that 30.8% participants spend their 6-8 hours per day on laptop/computers or TV during COVID-19 quarantine while 3.5% spend more than 8 hours per day on their laptop/computers. Mostly the people of this age are either students or teachers or office workers, who need to spend excessive time on their computer screens, to take online classes, work on their assignments, and prepare lectures and exams papers and conduct meetings through different soft wares. If we go through the previous literature to see their engagement we'll get to know that 85% of the population was using social media sites every week regularly and mobile phones were the major source of access as it has just become 'the basic need' of our generation and the ratio of cell phone use was 79.8% whereas laptop or desktop usage was 69.2% back in 2016 [14]. Another study has showed that the adolescents who were exposed to screens for 5 or more hours a day showed association with backache and headache, although they were small in number [15]. Similarly a study on adolescents in Singapore having a sample size of 2735 participants showed that only 17.5% of the participants were using laptops for more than 5 hours per day [16]. 21.8% used it for 3-5 hours per day and these are the results from the studies conducted before this pandemic and quarantine of COVID-19.

This study also showed that 34.2% participants had neck pain during quarantine of COVID-19 while 39.2% participant's experienced back pain during COVID-19 quarantine. According to a study performed among the office workers (computer workers) and student, 72% computer users had neck pain and

the participants who used computers for more than five hours suffered from severe neck pain. This study also showed that, neck pain was highly associated with the use of computers. This occurs due to prolonged sitting in the same position without any stretching exercises gradually it will lead to loss of muscle strength and pain in the neck muscles [17]. A Study done in Turkey among 1552 university students showed that low back pain was 40.9% frequent among young adults. It also revealed that the people who have zero level moderate physical activity indulged in their daily lives were at hazard of having back ache [18]. A study in which the frequency of Neck Shoulder Pain (NSP) and low back pain among adolescents who used computers was assessed revealed that 26% participants suffered with Neck Shoulder Pain while 12% suffered with low back pain. It also concluded that people who use computer for more than 2 to 3 hours are at risk of having Neck Shoulder Pain and those who used computers for more than 5 hours were at risk of having low back pain [19].

During COVID-19 quarantine 50.9% participants reported that they sit with support while using gadgets and 31.5% reported that they prefer lying position while using laptops and watching television. One of the researches showed that, the incidence of musculoskeletal aches occurring due to musculoskeletal ailments are enhanced due to utilization of laptops/computer for longer period of time. The incidence of musculoskeletal aches was moderately increased among female students 93 (50.3%) of 185 and students aged between 24 and 26 years reported the highest incidence of musculoskeletal aches 60 (37.5%) [20]. According to a study alteration typical spinal postures were correlated with the number of hours spent weekly on laptop/computer. This correlation could also occur due to short term computer posture causing neuro-musculoskeletal remodeling [21]. The results from the studies conducted before this pandemic and quarantine of COVID-19. Results suggest that sitting with support and lying while using laptops and watching television has decreased the neck and back pain during this period of quarantine. Our result suggests that before the quarantine more participants were experiencing neck and back pain but during COVID-19 many of them are students, teachers and office workers and they are working from home and spending more time on laptops but they are using precautionary measures to get rid of this neck and back pain.

Limitations

- The study is only confined to young and middle aged adults.
- There was no study available on prevalence of neck and back pain during COVID-19 quarantine up till this time.
- Due to COVID-19 pandemic situation we were not able to conduct one on one data collection from the participants.

Conclusion

The use of electronic gadgets such as cell-phones, laptop and computers are at its peak because most of the work is performed using these gadgets whether it is office work or school work. The statistics of the study showed that majority of the participants

had mild neck and back pain causing functional limitations while few number of participants were suffering from moderate and severe pain and young adults had increased percentage of pain due to usage of electronic gadgets as compared to the middle age adults.

Recommendations

- Augment the sample size in order to increase the generalizability of research.
- Further factors contributing to neck and back pain can be explored for e.g. BMI, Age and posture.
- Postural changes should be measured manually by the researchers by the help of postural grid.
- Further studies should be done to guide people about maintenance of physical fitness to strengthen their immune system to protect themselves from future pandemics.

References

- 1 Kakimoto K, Kamiya H, Yamagishi T (2020) Initial investigation of transmission of COVID-19 among crew members during quarantine of a cruise ship. *CDC* 69: 312-313.
- 2 Piguillem F, Shi L (2020) Optimal COVID-19 quarantine and testing policies. *Res Gat* 11: 23-26.
- 3 Rini I, Lestari NT (2020) The correlation between gadget usage and cervical muscle tension among the community of gamers. *Enfermería Clínica* 30: 149-153.
- 4 Kumar AK, Sherkhane MS (2018) Assessment of gadgets addiction and its impact on health among undergraduates. *Int J Com Med Pub Health* 5: 3624.
- 5 Widhiyanto A, Munawir A, Prayitno H (2017) The Effect of Duration of Smartphone Usage on Neck Pain. *Popul* 1: 5-6.
- 6 Strine TW, Hootman JM (2007) US national prevalence and correlates of low back and neck pain among adults. *Arthr Care Res* 57: 656-665.
- 7 Meman SH, Pais V, Kalal BS (2017) Physical risk factors for low back pain among young sedentary individuals-A prospective study. *Ind J Pain* 3: 157-163.
- 8 Heneweer H, Vanhees L, Picavet HSJ (2009) Physical activity and low back pain: a U-shaped relation?. *Pain* 143: 21-25.
- 9 Vernon H, Mior S (1991) The Neck Disability Index: a study of reliability and validity. *J Manipulative Physiol Ther* 2: 32-34.
- 10 Sterling M, Rebeck T (2005) The neck disability index (NDI). *Aus J Physiother* 51: 271.
- 11 Vigatto R, Alexandre NM, Correa Filho HR (2007) Development of a Brazilian Portuguese version of the Oswestry Disability Index: A cross-cultural adaptation, reliability, and validity. *Spine* 32: 481-486.
- 12 Fairbank J, Couper J, Davies J (1980) The Oswestry low back pain disability questionnaire. *Physiother* 66: 271-273.
- 13 Grotle M, Brox J, Vollestad N (2003) Cross-cultural adaptation of the Norwegian versions of the Roland-Morris Disability Questionnaire and the Oswestry Disability Index. *J Rehabil Med* 35: 241-247.
- 14 Villanti AC, Johnson AL, Ilakkuvan V (2017) Social media use and access to digital technology in US young adults in 2016. *J Med Int Res* 19: e196.
- 15 Torsheim T, Eriksson L, Schnohr CW (2010). Screen-based activities and physical complaints among adolescents from the Nordic countries. *BMC Public Health* 10: 324.
- 16 Mythily S, Qiu S, Winslow M (2008) Prevalence and correlates of excessive Internet use among youth in Singapore. *Ann Aca Med Sing* 37: 9.
- 17 Sabeen F, Bashir MS, Hussain SI (2013) Prevalence of neck pain in computer users. *Ann King Edw Med Uni* 19: 137-139.
- 18 Cakmak A, Yücel B, Ozyalcın SN (2004) The frequency and associated factors of low back pain among a younger population in Turkey. *Spine* 29: 1567-1572.
- 19 Hakala PT, Rimpelä AH, Saarni LA (2006) Frequent computer-related activities increase the risk of neck-shoulder and low back pain in adolescents. *Eur J Pub Health* 16: 536-541.
- 20 Obembe AO, Johnson OE, Tanimowo TO (2013). Musculoskeletal pain among undergraduate laptop users in a Nigerian University. *J Back Musculoskel Rehabil* 26: 389-395.
- 21 Straker LM, O'Sullivan PB, Smith A (2007). Computer use and habitual spinal posture in Australian adolescents. *Public Health Rep* 122: 634-643.

Ethical Approval

Ethical Approval was taken from the Institutional Review Board of Shifa International Hospital Islamabad.

Ethical Considerations

No harm was imposed to the participants. Participation freedom was given. Anyone who refused to participate was not forced at all. Their data and all the personal information was kept safe and personal. All the information provided to us will be kept confidential. The questionnaire was immediately stopped if one felt uncomfortable.

Deceleration of Competing Interest

No Deceleration of competing interest with respect to the research, authorship, and/or publication of this article was declared by the author(s).