THE RELATIONSHIP BETWEEN ADDICTION TO SMARTPHONE USAGE AND DISABILITY OF NECK AND UPPER LIMB AMONG ADULTS IN COVID 19 PANDEMIC: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: People contemporary lifestyle has become much dominated by smart phones and addiction of smart phone induces muscular problems. The internet users, especially the young generation worldwide, are using their smartphones or mobile phones more as a direct result of lockdown due to the coronavirus outbreak. The Excessive usage of their phone is exhibited when engaged in other activities such as studying, driving, social gatherings and even sleeping increases addiction. Smartphone addicted frequently adopt prolonged forward head posture while looking down at the screens of mobile phones so with the flexed neck and inappropriate posture which leads to neck, upper limb pain and disability.

Aim: To find out the smart phone addiction and disability of neck and upper limb in smartphone users.

Methodology: Cross sectional study with 150 smart phone users between age group 18-35years were selected. All the smart phone users were explained about the aim & objectives of the study & informed consent was taken. Smartphone Addiction Scale is used to find out the addiction of smart phone. Neck Disability Index (NDI) & Disabilities of the Arm, Shoulder and Hand (DASH) Scales were used to evaluate the pain & disability. Data was collected & statistically analysed.

Result: The mean value of smart phone addiction scale is 100.16. The mean value of NDI is 9.97. The mean value of DASH questionnaire is 18.93. The coefficient of correlation r=0.87

Conclusion: There is a significant correlation between smart phone addiction and disability of neck and upper limb in smartphone users.

Keywords: Smartphone, Addiction, Disability, NDI, DASH.

I. INTRODUCTION

Covid 19 pandemic, Lockdown has created dependency on smartphone for groceries bill payments, in fact it has modified traditional learning. It has brought classroom home making young adults more prone for its addiction. The smart phones is great human invention which has replaced various equipments like radios camera, mail, teaching and learning through different sophisticated features becoming an inherent part of human life. There is steep rise in number of cell phone users every year. The phones allow people interrupted communication without their movements and distance¹. People often do not turn off their smart phones, do not go out without them, and use them for business, relaxation, and socializing increasing dependency leading to addictive behaviour ².

The Social interaction of people and their smart phone is much more developed than expected compared to the fixed telephone, and even with their desktop or laptop computer ³.

Repeated usage of these devices takes a toll on human body. Prolong abnormal posture can lead to Musculoskeletal disorders including a large group of conditions⁴. In addition, previous researchers have reported that prolonged usage of digital media, including smart phones, frequently causes deleterious alterations to head and neck posture ⁵. Study has found out that, there is a high incidence of musculoskeletal disorder of hand, wrist, forearm, arm, and neck due to prolong, forceful, repetitive use of such devices. Various risk factors for
musculoskeletal disorder related to hand held devices will be sustain gripping, repetitive movement of wrist, thumb and fingers. Musculoskeletal disorders is mainly focus on a joint and affect the muscle and bone, however other area and structure can be strained and lead to injury. Hand held devices (HHD) are those devices which are used for communication and entertainment purpose such as gaming, media and internet access which includes smart phones leading to musculoskeletal disorders. Many people may use smart phone with the abnormal forward head posture, and the smart phones placed near the waist or lap while in a sitting, users bend the head for prolong period to read the screen leading to fatigue and pain in the neck and shoulder. As a result, there is a posture abnormality in cervical region as well as surrounding soft tissue causing the load on the supporting structures and activated the neck muscles resulting in pain in neck. Earlier studies have revealed that while texting in mobile the thumb covers motions in 3 degrees of freedom. Therefore, the results of this study reported that the excessive use of a smart phone could produce considerable stress on the muscles and therefore causing pain and disability.

Disability is a condition that limits a person’s movements, senses, or activities. A habitual excessively forward head posture has been suggested to be pain provoking, with a consequential reduction in muscle strength. However, association between physical dimensions of upper quarters of body and the presence of neck pain or discomfort have not been clearly established. Hence in this study we tried to find out correlation between smart phone addiction and disability of neck and upper limb.

II. METHODOLOGY

A cross-sectional study was conducted by distributing questionnaire through subjects between age group 18-35. A brief description of the study objectives was presented, those who agreed to respond to the questionnaire confirmed their agreement were included in study. Demographic data was documented.

Permission was obtained from institutional ethical committee. Subjects who were using smartphone more than 2 years, 150 samples aged between 18-30 years were participated in the study, who were randomly selected. Subjects who had recent fracture, any deformity or any known cervical condition were excluded from the study. Study was explained to them, then subjects were asked to fill Smart addiction scale for find out smart phone addiction, Neck disability index for evaluate the neck disability, DASH score is for evaluate the pain and disability of shoulder, arm, wrist and hand. Data was documented, analyzed and subjected for statistical analysis.

Data were analyzed using MS Excel. Descriptive statistics including mean, standard deviation were used to present the participants’ demographics and outcomes. The association smart phone addiction with neck disability and disability in arms was done using Pearson’s correlation to determine the nature and significance of relationship between the two outcome measures.

III. RESULTS

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean±SD</th>
</tr>
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<tbody>
<tr>
<td>Smart phone Addiction scale (SAS)</td>
<td>100.16 ± 18.452</td>
</tr>
<tr>
<td>Neck disability Index(NDI)</td>
<td>9.97 ±5.458</td>
</tr>
<tr>
<td>DASH</td>
<td>18.93 ±13.92</td>
</tr>
</tbody>
</table>

The coefficient of correlation r=0.87
The R square is 7.29 %

Graph: 1. Correlation of smart phone addiction with neck disability and neck pain.
Interpretation: The graph showed significant correlation between smart phone addiction and disability of neck and upper limb.

IV. DISCUSSION

The result of this study showed the significant correlation between the smart phone addiction and disability of neck and upper limb. The study was included 141 right handed dominated people out of 150 samples. In this study 76 girls and 74 boys was included. Smart phone addiction scale is used to find smart phone addiction. The neck disability index was used to find out the neck pain and disability among the smart phone users. The DASH score was used to find out the arm, shoulder, hand and wrist disability. According to all the responses we tried to correlate the disability of neck and upper limb with the smart phone addiction and the study showed there is significant correlation of smart phone addiction and neck disability. A smartphone is an e-toy designed for the lonely inner child hidden in each and every one of us.

By conducting this research, we tried to bring attention to potential risks that cell phones can cause to the users and provide some solutions how to mitigate side-effects of cell phones and mobile devices on the users by limiting smartphones and handheld devices usage. To live in accordance to the current advancements of the technology, the use of cell phone in our daily living is crucial. However, prolonged use of cell phone is known to cause symptoms of musculoskeletal disorder. In this study, the result showed that there is significant correlation between smart phone addiction and disability of neck and upper limb in smart phone users. The posture we adopt as we store at our phones that increases stress on neck and can cause excessive wear and tear.10

Text neck is the term used to describe the neck pain and damage sustained from looking down at your cell phone, tablet or other wireless devices too frequently and for too long. Young adults and teens are especially at risk for suffering symptoms of text neck. Of course, this posture of bending our neck to look down does not occur only when texting. The problem with texting is that it adds one more activity that causes people to look down and people tend to it for much longer periods.10

The problem of neck pain is common. Especially young adult’s reported that more than 30% of population woke with neck pain at least once a week. Among individuals with neck pain, 37.3% reported persistent neck pain and related disability and 9.9% experienced an aggravation during follow-up year with their neck problems10. Harrison et al found that, the compressive load on the cervical discs in the neck-forward flexed position was 10 kg greater than that in the upright neck position. These biomechanical variations or the presence of neck pain can induce proprioceptive deficits in the cervical region11.

People usually flex their neck downwards to stare at the lowered object and maintain the head in a forward position for long periods of time, which may cause musculoskeletal disorders, such as “upper crossed syndrome.” Moreover, the maintenance of a head-forward posture decreases cervical lordosis of the lower cervical vertebrae and creates a posterior curve in the upper thoracic vertebrae to maintain balance; this is known as the forward head posture12.

Musculoskeletal disorders include a large group of conditions that result from traumatizing the body in either a minute or a major way over a period of time. The severity will be vary according to the cause.13 It built up of
A new study suggests that increased use of technology in adolescents may be linked to attention behavior and self-regulation problems for at-risk youths. The study looked at the relationship between mental health symptoms and amount of time spent each day texting using social media or the internet. Participants in the study were all of lower socioeconomic status and already at heightened risk for mental health issues. The result of this study shows that when adolescents used devices more they were more likely to have behavior problems such as fighting, lying and displaying symptoms of attention deficit hyperactivity disorder. In today’s era of technology how the youth are commonly using devices to connect with their peers in social networks. Teenagers today are spending their more time on Technology devices like Laptop, Mobile Phones, Smart Phones and Tablets etc. There are very bad effects of these devices on youth’s health.

We found that there is significant correlation between smart phone addiction and neck and upper limb disability.

REFERENCES


15. Singh D, Tilak G. Effect of Technology Devices on Health of Youth in Pune City.