THE IMPACT OF SMART PHONE ADDICTION AMONG YOUNG PEOPLE ON THE NECK POSTURE IN COLLEGE STUDENTS.

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ABSTRACT

Background: Smart phones are becoming increasingly in dispensable in every daily life and offer a substantial variety of mobile application for information, communication, education and entertainment purposes smart phone use reportedly changes posture. However, neck posture is altered in smart phone users. To find out the level of smart phone addiction and its relationship with neck posture in college students.

Methods: The study examined 100 Participants were recruited from SVIMS College of Physiotherapy, Tirupathi in the age group of 19-22 years. Students were asked to fill a proforma with the questionnaires of Smartphone Addiction Scale (SAS), Neck Disability Index (NDI) attached. Spearman correlation coefficient was used to correlate between the SAS and NDI respectively.

Results: Correlation between NDI and SAS-SV is 0.896 (p=0.0001) significant. This model is significant with f=401.125 (p<0.0001).since r is very high and statistically significant it means this is not an occurrence by chance.

Conclusions: The study showed that musculoskeletal problems in neck posture can be seen in smartphone addicted students which may be short term initially but may later lead to long term disability.

KEYWORDS:

INTRODUCTION

Smart phones are becoming increasingly in dispensable in every daily life and offer a substantial variety of mobile application for information, communication, education and entertainment purposes [1].

Smart phones typically have touch screens, mobile internet access via Wi-Fi or cellular networks, capability for installation of smart phone application, and other functions such as media player, digital cameras and GPS-based navigation [2,3].

Smart phone users tend to report pain in the neck, shoulder and thumb. Prolonged smart phone usage causes faulty posture, such as forward neck posture, slouched posture or rounded shoulders[4,5]. Most smart phones tasks requires users to stare sharply downwards or to hold their arms out in front of them to read the screen , which makes the head move forward and cause an excessive posterior curve in the upper thoracic vertebrae to maintain balance, placing stress on the cervical spine and the neck muscles[5,6] .

Text neck directly affects spine while flexing the head forward at varying degrees when the head tilt forward at 15 degrees, the force on the neck surge to 27 pounds, at 30 degrees 40 pounds, at 45 degrees 49 pounds and at 60 degrees 60 pounds then at 90 degrees the model

prediction was not reliable [5-7].

Generally smart phone addiction consists of four main components: compulsive phone use; withdrawal, feelings of agitation, or distress without the phone: and functional impairment, interference with other life activities and face to face social relationships [8,9].

Now a days addiction not only refers to drug or substance abuse, but it also refers gambling, internet , games or even smart phones [10,11] .

METHODS

Participants were recruited from SVIMS College of Physiotherapy, Tirupathi. To be included in the study their age group should be of 19-22 years, able to understand and fill the questionnaire in English. Exclusion criteria were students with any other medical course had experienced cervical fracture or trauma,bone cancer, neurological motion disorders,restriction in lung function,unstable cardiac conditions were also excluded. Study design was observational analytical study with random sampling where total estimated sample included 100 subjects. Nature and purpose of the study was explained and informed oral consent was taken from the participants.

The questionnaire were distributed which consisted of

three parts including 1) demographics (name,age,gender,year of the student) 2) smart phone addiction scale (SAS) to measure self reported addiction to smart phone use 3) neck disability index for any abnormal symptoms of neck functions.

Smart phone addiction scale (SAS-SV):-

The SAS-SV is a validated scale which was originally established in south korea, but published in English (kwon,kim,et al.,2013). This scale is a shortened version of the original 40 itemed scale. It is a 10 itemed questionnaire used to assess levels of smart phone addiction. Participants' are asked to rate on a dimensional scale how much each statement relates to them.(1"strongly disagree" to 6"strongly agree") example items include' having a hard time concentrating in class, while doing assignments, or while working due to smart phone use', feeling inpatient and fretful when iam not holding my smartphone','missing planed work due to smart phone use'and constantly checking my smart phone so as not to miss conversation between other people on twitter or face book; the total score ranges from 10 to 60,with the highest score being the maximum presence of" smart phone addiction"in the past year. The final 10 questions were chosen with regard content validity and the original SAS –SV showed content and concurrent validity and internal consistency (cronbach's alpha:0.91) this scale is very quick and easy to use. There are no reverse scores involved.

Neck disability Index (NDI):-

The NDI assessment involves a 10item, 50point index questionnairethat assesses the effects of neck pain and symptoms during a rangeof functional activities (Vernon & Mior 1991). Of the 10 items, fourrelate to subjective symptoms (pain intensity, headache, concentration, sleeping), four to activities of daily living (lifting, work, driving, recreation) and two to discretionary activities of daily living (personal care, reading) (Stratford et al., 1999; Westaway, Stratford & Binkley, 1998).

Each item is scored on a 0 to 5 rating scale, in which zero means 'Nopain' and 5 means 'Worst imaginable pain. The test was interpretatedas a raw score, with a maximum score of 50. A higher NDI score indicatesgreater neck disability. This index is the most widely used and most strongly validated instrument for assessing selfrated disabilityin patients with neck pain (Vernon, 2008).

Statistical analysis

Data analyses were performed using SPSS 20.0 software for Windows. The numerical scores of SAS, NDI were presented as Mean ± Standard deviation. Pearson's correlation coefficient was used to assess the relationship between SAS and NDI scores

Table 1: Mean and standard deviation of SAS-SV and NDI scores by age

Age	N	Mean ±sd of SAS-SV	Mean ±sd of NDI
19	10	37.60 ± 3.77	28.30 ± 4.296
20	40	39.58 ± 3.210	30.05 ± 4.652
21	34	40.21 ± 3.875	31.50 ± 4.350
22	16	40.81 ± 2.880	31.50 ± 3.777

Table 2: Mean and standard deviation of SAS-SV and NDI scores by gender

Gender	N	Mean ±sd of SAS-SV	Mean ±sd of NDI
F	73	39.53 ± 3.621	30.42 ± 4.527
M	27	40.48 ± 3.167	31.07 ± 4.251

Table 3: Mean and standard deviation of SAS-SV and NDI scores by year of the student.

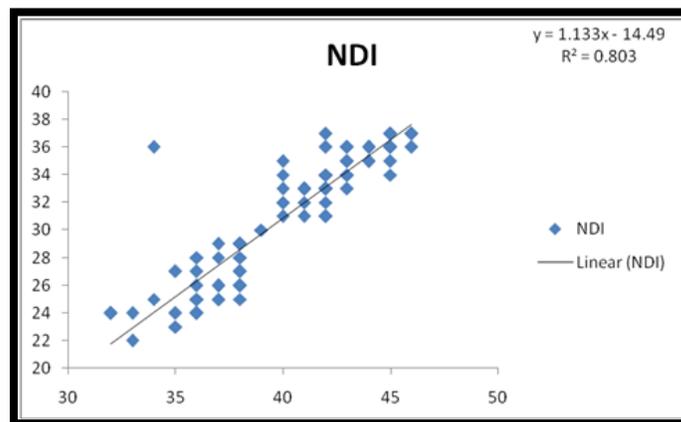| Year of the student	N	Mean ± sd of SAS-SV	Mean ± sd of NDI
3	50	39.18 ± 3.385	29.70 ± 4.595
4	50	40.40 ± 3.569	31.50 ± 4.137

Fig 1: correlation between smartphone addiction scale and neck disability index.

Results

Correlation between NDI and SAS-SV is 0.896 (p=0.0001) significant. This model is significant with f=401.125 (p<0.0001).since r is very high and statistically significant it means this is not an occurrence by chance.

Discussion

Our results in the present study showed that the degree of smart phone influence was significantly correlated with posture and musculoskeletal discomfort in the participants. Significant positive correlation between both SAS and NDI (p<0.0001)

The neck disability among smart phone users might be related to frequent neck flexion posture. Which changes the natural curve of the cervical spine and increases the amount of stress on the cervical spine.

Excessive use of smart phones can lead to habitual repetitive and continuous movements of the head and neck toward the screen throughout the day. such movements are associated with a high risk of chronic neck pain[4].

The implications of the present study are such that students should make an effort to reduce the continuous amount of time of usage spent using a smart phone and should also implement other preventive factors like maintenance of correct posture while usage of voice to text software could also be advised[11,12].

Conclusions: The study showed that musculoskeletal problems in neck posture can be seen in smartphone addicted students which may be short term initially but may later lead to long term disability.

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