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Original Research Article

Effect of providing awareness regarding the text neck syndrome in young adults

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ABSTRACT

Background: Electronic gadgets are indispensable part of our life which has reached every doorstep across the globe. With advancing age the use of mobile phones have drastically increased and people spend long hours on their gadgets which has led to several musculoskeletal problems. Constant head down posture and improper alignment of head and neck attained during usage leads to permanent damage in cervical spine such as flattening of spinal curve, early onset of arthritis, spine degeneration, disc compression and herniation. The term text neck can be described as repetitive stress injury and pain sustained from excessive use of handheld devices. Lack of awareness and negligence amongst the young population text neck syndrome can result in inflammation of neck ligaments, muscle and nerves leading to permanent changes. This study aims to find out the effects of providing awareness regarding text neck syndrome and it preventive measures while using hand held device.
Methods: 218 young healthy adults were pre given a pre-test regarding the awareness of text neck syndrome, later they were given an information brochure. Following this, the participants were given a post-test to check the effect of providing information regarding Text neck syndrome.
Results: Results of the study revealed that there was significant improvement in post test score as compared to pre-test using paired t test (p value >0.05).
Conclusions: There was lack of awareness regarding the syndrome and its preventive measures, after appropriate providing information, awareness were established in the young adult population.

Keywords: Awareness, Brochure, Neck pain, Text neck syndrome

INTRODUCTION

Electronic gadgets have become indispensable part of our life which has reached every doorstep across the globe. With advancing age the use of mobile phones have drastically increased and people spend long hours on their gadgets which has led to several musculoskeletal problems.

Out of the 6 billion people in the world over 4 billion have mobile phones. Texting has become the dominant form of communication. Also, 25% of population in India are using phones.[2] Almost half of mobile users are younger than 25 years. 40% of all the smart phone users are from 18 to 25 years of age group. The time spend on smart phone is about 2 to 4 hours per day.[1]

Various musculoskeletal problems like neck pain, headache, shoulder pain, numbness, tingling in upper extremity, SMS thumb, arthritic changes in joints of hands have been observed following prolong usage of various electronic devices. The term text neck can be described as repetitive stress injury and pain sustained from excessive use of handheld devices.[1]

The human head weight about 10-12 pounds in neutral position. As the neck goes in flexion and there is increase in angle and the cervical spine is under tension. At 15 degree angle, this weight is about 27 pounds; at 30 degree angle 40 pounds; at 45 degree its 49 pounds and at 60 degree it is 60 pounds.[1] Constant head down posture and improper alignment of head and neck leads to permanent damage in cervical spine such as flattening of spinal curve, early onset of arthritis, spine degeneration, disc compression and herniation.[1]

Lack of awareness and negligence amongst the young population regarding text neck syndrome can result in inflammation of neck ligaments, muscle and nerves leading to permanent changes.

Neck pain is one of the causative factors for emotional issues. Anger, frustration, anxiety and depression are all the end-effects of pain. Neck pain has become a major cause for deterioration of work ability, attention, concentration in the young adult population which has hampered their professional, personal as well as social life.

There have been studies that have been done to find out the awareness regarding the text neck syndrome among the mobile users.[2] However; there is paucity in the studies which provide knowledge and awareness regarding preventive measures.

Hence aim of this this was to find out the effect of providing awareness about text neck syndrome in young adults.

METHODS

This was an interventional study with random sampling done in an educational institutional campus in Vadodara. Participants were healthy students in age group of 18-24 years using electronic devices. Participants with any pathology involving neck were excluded from the study. Sample size was calculated using graph pad software, was found to be 218. Random sampling was done. An informed consent was obtained from the participants.

Participants were made to fill online form which included demographic data, information regarding usage of electronic device and a pre-test regarding awareness of text neck syndrome. Following this the participants were given information regarding the causes, effects and preventive strategies for text neck syndrome in form of a brochure. This was followed by online post-test. Primary outcome was score of questionnaire in form of pre and post-test. Secondary outcome were the qualitative feedback obtained from open ended questions obtained at the end of questionnaire. Data obtained was entered and was analysed using Microsoft excel.

The data obtained from the study was analysed using Microsoft excel and were tabulated.

RESULTS

The study showed high prevalence of neck pain (52.75%) which is related to text neck syndrome in young adults (Table 1).

Table 1: Prevalence of neck pain related to text neck syndrome.

Pain	Yes	No
N	115	103
Percentage	52.75	47.24

There was more prevalence of neck pain in females (72.93%) compared to males (27.06%) (Table 2).

Table 2: Gender wise distribution of prevalence of Text neck syndrome in young adults.

Gender	Male	Female
Neck Pain	59	159
Percentage	27.06	72.93

The study showed that the prevalence of neck pain is more in 20-22 years (interns) which was 23.85% than other population of other academic years (Table 3).

Table 3: Year wise distribution of prevalence of neck pain.

Year	Neck pain	Percentage
First year	27	12.38
Second year	37	16.97
Third year	24	11.00
Final year	24	11.00
Interns	52	23.85
Masters	26	11.92
Others	28	12.84

The study showed more preference of mobile phones (85.32%) over any other gadgets among the young adult population (Table 4).

Table 4: Preference of gadget among the young adult population in text neck syndrome.

Gadget	Mobile	Laptop	Computer	Tablet
N	186	29	1	2
Percentage	85.32	13.30	0.45	0.91

Table 5 Onset of neck pain following the use of device.

Duration	Immediately	After 30 min.	After 1 hour	More than 1 hour
N	19	16	42	141
Percentage	8.71	7.33	19.26	64.67

The study showed maximum population (64.67%) experience neck pain after more than 1 hour of constant use of gadget (Table 5).

Table 6: Difference in pretest and post test scores regarding the awareness of text syndrome.

	Pre test	Post test
Mean	6.321100917	7.160550459
SD	0.593580463	
P value	2.27689E-10	
Significance	Statistically significant	

The mean results of pre and post test data showed statistically significant improvement in post-test results by application of paired t-test that after the information provided in the study regarding the text neck syndrome (Table 6).

Table 7: Feedback given regarding the information provided in the study.

Feedback	Helpful Yes	Helpful No
N	212	6
Percentage	97.24	2.75

The feedback suggest that maximum population (97.24%) found the information helpful regarding text neck syndrome (Table 7).

Table 8: Feedback regarding what did they like the most in the brochure.

Feedback	N	Percentage
Posture	144	66.05
Preventive measures	7	3.21
Awareness	7	3.21
Exercises	28	12.84
All of above	32	14.67

The feedback suggest that maximum population liked the information regarding the correct posture (66.05%) from the study (Table 8).

Table 9: Feedback regarding what they will do differently after the information provided in the brochure.

Feedback	N	Percentage
Frequent breaks	38	17.43
Proper posture	55	25.22
Limit the usage	28	12.84
Follow exercise	30	13.76
Placing gadget at eye level	27	12.38
Supportive devices	19	8.71
Awareness regarding text neck syndrome	21	9.63

The feedbacks suggest maximum population will follow proper posture (25.22%) while using gadgets to prevent text neck syndrome (Table 9).

DISCUSSION

In the present study, it was found that (52.75%) of the young adult population suffered from neck pain or associated symptoms due to over use of gadget (Table 1). The possible reasons for neck pain could be muscle strain due to overuse of electronic devices, sustained prolonged static posture or repeating particular neck movements for long period, reduced muscle endurance and increased fatigue levels.

This results are in accord to a cross-sectional study using numeric pain rating scale for evaluation of neck pain was performed to find out the association between mobile phone use and neck pain in university students. This study demonstrated a significant positive correlation between the duration of mobile phone use and the duration and severity of neck pain.[3]

The study shows young females experience more neck pain compared to males (72.93%) (Table 2). This could be due to cross-sectional area of neck muscles (and thus their capacity to generate force) are larger in males than females. The cross-sectional area of deep posterior neck muscles were found to be significantly larger in males.[5]

A study showed group differences in cervical flexor muscle volume and volume differences across spinal levels and muscles suggest the contribution of cervical muscles to chronic idiopathic neck pain is multifaceted and complex.[6] Also, structural gender differences explained altered response to dynamic loading in women leading to increased soft tissue distortion and greater injury susceptibility. It was found that vertebral width and disc-facet depth were significantly greater in men. Additionally, segmental support area, combining inter-facet width and disc-facet depth, was greater in men, indicating more stable inter vertebral coupling and decreased column stability.[4] These findings are in accord with the study performed by Stemper et al which identifies women as more susceptible to trauma-related neck pain commonly resulting from soft tissue cervical spine injury.[4]

This study revealed the 20-22 age group had more neck pain (Table 3), probably due to increase use of mobile phones as a result of online studies, work from home and for entertainment purpose too. This can be due to constant work load which exerts more pressure over the cervical region.[7]

It was also found that constant use of electronic gadgets for 1 or more than 1hour results into neck pain (64.67%) (Table 5). Sustained forward head posture will shift the center of weight forward. This imbalance causes constant contraction of musculature to compensate giving rise to

text neck syndrome with the symptoms such as neck pain, shoulder pain, upper back pain, forward head posture and muscle spasms.[8]

A similar study was performed to investigate the effects of smart phone usage duration on neck pain and sense of position as well as deep cervical flexor fatigue in young and middle age patients with chronic mechanical neck pain. It was found that increased neck pain, decreased cervical position sense and increased deep cervical flexor fatigue in young adult patients with chronic mechanical neck pain.[5]

The effectiveness of the information provided was compared by the mean of pre-test and post-test which was found to be statistically significant (Table 6). This suggests that awareness was established in the young adult population after providing appropriate information regarding the syndrome, pictorial representation of preventive measures in form of pamphlet and various ergonomic advices which was helpful in correcting posture, keeping the gadget at eye level, using neck support and several neck exercises.

A similar study was performed to find out the impact of implementing a fall prevention educational session for community-dwelling physical therapy patients. The aim of the study was to evaluate the impact of a fall prevention educational session on fall risk knowledge, use of fall prevention interventions and the number of falls in community-dwelling older persons attending physical therapy. An increase in fall risk knowledge ($p=0.031$) and implementation of fall prevention techniques were noted. A statistically significant difference was noted in the means of pre-test and post-test interventional FRAQ scores. The purpose of this study was to evaluate the impact of fall prevention educational intervention on fall risk awareness, implementation of fall prevention strategies and fall sustained.[9]

The study had included feedback for qualitative analysis where it was found that maximum people (97.24%) found the study informative and helpful for them (Tables 6 and 7). As the study had information regarding the posture, preventive measures, various exercise to reduce neck pain and a pamphlet to help the people prevent text neck syndrome.

It was also found that many of them liked the information regarding correct posture (66.05%) helpful for them (Tables 8 and 9).

The study was limited to age group 18-24. The study was limited to neck pain related to use of gadgets and no other causative factors were taken into account.

It was found that many of them were unfamiliar with the term text neck syndrome and were unaware about its prevention. Various ways can be followed to prevent it-correct posture while using mobile phones, taking 20 minutes of break after constant use of gadgets, practicing neck stretches and strengthening exercises and using neck support which could considerably reduce neck pain and prevent it. Also, more emphasis should be on exercises to improve the strength and endurance which can help reducing the fatigue.

CONCLUSION

In conclusion, this study demonstrated high prevalence of text neck syndrome among young adult population. Also the participants appreciated the information regarding awareness and preventive measures concerning to the syndrome.

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