Original Article

Prevalence of musculoskeletal symptoms and its associated risk factors in touchscreen tablet computer users

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Objective: To determine the prevalence of musculoskeletal symptoms and its associated risk factors in touchscreen tablet computer users.

Methodology: This observational study was conducted among 201 undergraduate students from The University of Lahore. Tablet computer usage, posture during use, neck, shoulder and upper extremity symptoms and associated risk factors were recorded. Data were analyzed using SPSS version 25.0.

Results: Prevalence of symptoms related to musculoskeletal system during tablet use was 74.6%. Symptoms in neck were 46.3%, upper back and shoulder 37.3% and arm and hand 15.4%. Important factor related to symptoms was posture.

Conclusion: Postural factors were the most common cause for development of symptoms related to musculoskeletal with the use of tablet. (Rawal Med J 202;45:382-384).

Keywords: Posture, pain, tablet.

INTRODUCTION

The symptoms of shoulder and neck are communal fitness problem. In university students, a cohort study reported an increase incidence of 46% and constant neck pain in 33%, especially among young populations.[1] Some authors have described physical discomfort during the use of desktop computers, laptops and notebooks with a small proportion of children under five years of age who experience computer-related discomfort.[2] Musculoskeletal disorders were common in computer users and these were associated with postural and ergonomics changes.[3]

Many children and adolescents at are at high risk of computer related health problem due to increase in computer usage in younger age groups.[4] An observational cross-sectional study of visual desktop users reported incidence 10 to 62 percent of musculoskeletal disorders of shoulder and neck region among desktop users.[5] The risks may include motionless arm and neck postures, repetitive work, workplace design and physical exposures related to the psychosocial factors to the features of the work.[6,7] Laptops produce greater angles of neck flexion and a reduced range of motion.[8] The prevalence of upper extremity disorders related to computer science is higher in women.[9,10] A Swedish study showed that 15% university students developed neck and back pain.[11]

Taking into account how users maintain static posture while using the device, a higher incidence of neck/upper extremity pathologies occur among users of touchscreen tablets.[12] The purpose of this study was to determine the incidence of shoulder and neck symptoms during usage of touchscreen tablet and also examine the risk factors which are linked with these difficulties.

METHODOLOGY

This cross-sectional study was conducted among 201 undergraduate students of Physiotherapy department of University of Lahore. A convenient sampling technique was used. A questionnaire was used which consisted of 21 objects in three groups: demographic, history and characteristic behavior during tablet use and neck upper back and problems of shoulder with the usage of tablet which include location type duration and severity of symptoms. All elements linked with exact position consisting of the maximum usage of tablet duration was 2-3 hours and support was demonstrated to benefit members to recognize explanation properly.

RESULTS

201 subjects of both genders were screened. There were more females (Table 1). Discomfort of neck

shoulder arm and hands was found in 150(74.6%) subjects (Table 2). Type of discomfort you experienced was stiffness in 56(27.9%) and aching in 70(34.8%) (Table 3). Area of discomfort was neck in 93(46.3%) and upper back and shoulders in 75(37.3%) (Table 4).

Table 1. Descriptive statistics.

Gender	Frequency	Percent
Male	79	39.3
Female	122	60.7
Total	201	100.0

Table 2. Descriptive statistics of neck shoulder arm and hands discomfort,

Discomfort of neck shoulder arm and hands	Frequency	Percent
Yes	150	74.6
No	51	25.4
Total	201	100.0

Table 3. Type of discomfort experienced.

Type of discomfort you experience during tablet use	Frequency	Percent
Stiffness	56	27.9
Soreness	22	10.9
Aching or pain	70	34.8
Tingling or numbness	32	15.9
Cramping	21	10.4
Total	201	100.0

Table 4. Area of discomfort.

Area of discomfort	Frequency	Percent
Head	2	1.0
Neck	93	46.3
Upper back and shoulder	75	37.3
Arm and hand	31	15.4
Total	201	100.0

DISCUSSION

We found that participants who used tablets were most likely to develop musculoskeletal symptoms of shoulder, neck, upper back, arm and hands. Postures were also determined because it is most important risk factors of musculoskeletal symptoms during usage of tablets. Sitting with and without support and tablet in lap were most commonly related to musculoskeletal problems with the usage of tablets.

Tablet use resulted in musculoskeletal symptoms, particularly in region of shoulder, and upper back. In the previous studies, the prevalence of neck was examined that is 25% for females and 16% for males.[13] In current study, 76.6% students reported developing neck, shoulder and upper back pain because of inactive behavior and posture. A pervious study showed that neck shoulder and upper back were more common among females.[14] Claes et al reported that high-low tables increased the possibility of developing neck pain.[15]

In our study, 48.8% participants reported feelings of discomfort during their sleep. Frutiger et al found nonspecific neck pain significantly associated with psychological factors like anxiety, depression and appearance were associated with an increase in non-specific neck pain.[16] Another study showed that poor posture may be associated with neck pain.[17]

Lee et al showed that overall incidence of musculoskeletal disorders during the usage of tablet computer were 67.9%, more so in females.[1] Kang et al observed positive changes in 38 patients that developed neck pain by the excessive use of technology, precisely using the computers.[18]

Another study by Gold et al observed greater intensity and more discomfort for prone posture than for the seated posture.[19] Our study showed that use of tablet is unusual postures such as sitting in a couch or chair and lying on a back or side lying was associated with symptoms. More researches are needed to determine musculoskeletal symptoms for excessive use of tablet computers to maintain postures.

CONCLUSION

The finding of this study showed that postural factors were the most common cause for developing

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musculoskeletal symptoms during use of tablets.

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