

Among University Academic Staff

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ABSTRACT

Background: Nowadays, mobile phones are one of the most used electronic devices in the world, and there are utilised almost by everyone in various societies and settings. The term "Text Neck" or text neck syndrome (TNS) is explained as an incorrect postural alignment of neck muscles while using mobile phones or any other electronic gadget while texting for long durations.

Purpose: The aim of this study is to identify the prevalence of text neck syndrome associated with prolong mobile phone usage and maintaining of an incorrect posture among university academic staff in International Islamic University Malaysia (IIUM), Kuantan Campus.

Methods: The selected type of study design was a cross-sectional study with convenience sampling, the sample size was 117 academic staff selected from different faculties at International Islamic University of Malaysia Kuantan Campus (IIUMK), Pahang Darul Makmur, Malaysia.

Results: the number of academic staff who participated in this study were roughly even. The sample included 59 males (50.4%) and 58 females (49.6%) and the mean age of participants in this study was (SD=38.38±6.05) with majority of participants ages fall between 30 to 40 years old (63.2%). Also, the duration of usage of mobile phone for working purpose has a significant value (P<0.001). Furthermore, mobile phone usage and its relation to posture when using a mobile phone has a significant value (P=0.073). Moreover, the prevalence of neck pain has a significant value (P=0.002) and it was found that female participants of those with neck pain (55%) are more than males with neck pain (27.1%).

Conclusion: the study demonstrated the prevalence (p=0.002) of neck pain among smartphone users of university academic staff in International Islamic University Malaysia. It also depicted the importance of posture while using the mobile phone device and explained the faulty posture that contributes to the development of text neck syndrome. This supports the requirements for public health awareness toward academic staff.

Key words: Electronic devices; Islamic University Malaysia; Demonstrated

INTRODUCTION

Nowadays, mobile phones are one of the most used electronic devices in the world, and there are utilised almost by everyone in various societies and settings, approximately 77% of people globally possess a mobile phone. Moreover, texting has become the most widely used because it is a constructive process of

communication. Approximately 79% of the population in ages ranging from 18 to 44 years old would carry their smartphone almost all day Furthermore, mobile phones play an important role in the academic setting as a method to communicate between academic staff and students. claimed that 100% of university academic staff use mobile phones for texting purposes

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with their co-workers, and to notify their students on academic matters. The term "Text Neck" or text neck syndrome (TNS) was introduced by a chiropractor Dr Dean L. Fishman in 2008 to denote an incorrect postural alignment of neck muscles while using mobile phones or any other electronic gadget while texting for long durations. Consequently, a person of that condition will complain of neck tightness and various symptoms due to a recurring or an overworking of neck muscles. Moreover, the text neck syndrome leads to various health issues eventually such as symptoms of shoulder and back pain, persistent migraines, improper curvatures of the backbone, stated that currently, a mobile phone user consumes a mean of approximately two to four hours per day with neck forward flexion, which means roughly 700 to 1,400 hours per year of overuse and stress on the cervical spine. Generally, the university academic staff are more prone to postural misalignments as compared to general populations because of their job environment and tasks they should accomplish using multiple types of gadgets. However, since mobile phones are the number one electronic device used by academic staff as according to thus an issue of "text neck" is expected to be common among them. There is a research gap regarding text neck syndrome among the academic staff population while there are many studies conducted on academic students [1-5].

METHODS

The selected type of study design was a cross-sectional study with convenience sampling, the sample size was 117 academic staff selected from different faculties at International Islamic University of Malaysia Kuantan Campus (IIUMK), Pahang Darul Makmur, Malaysia. The inclusion criteria were both male and female academic staff at any age, and willing to participate voluntarily in this study. Excluded criteria were non-academic staff, and those who are formally diagnosed with neck or spine disease. An approval from the IIUM Research Ethics Committee (IREC) and Kulliyah Postgraduate and Research Committee (KPGRC) commenced the study. All participants are required to sign a consent form before attempting to answer the questionnaires. The consent form contains the details of the study and emphasise on voluntary participation. Anonymity and confidentiality of information were maintained. It is important to note that participants can withdraw from the questionnaire at any point. To avoid any type of bias the study, the participants were given enough time for proper recall of long-term memory. Also, there was clear identification of study population in this study. To avoid non-response bias, the questionnaire utilized in this study was not too long or complicated, and it does not take longer time to complete. Soft reminders were sent to participants each two weeks to remind them to fill in the survey to avoid non-response bias to occur. Likewise, this study prevented the information bias by using standard measurement instruments such as questionnaire [6-10].

Self-administrated questionnaire

Self-administered questionnaires were utilized as the data collection tool. The questionnaire is obtained from (Al-Hadidi et al., 2019). The questionnaire contained 25 questions with

Four sections; Section A is on the demographic data and it has four items such as gender, age, handedness, and which faculty. Section B is on the duration, posture, and purpose when using the smartphone and it will contain seven items. Section C contains six items, and it focuses on the assessment and nature of pain by using the NRS-11 pain scale. Section D has seven items focus on whether the participant sought any treatment options and pain assessment after pausing the mobile phone usage. Hence, the questionnaire will be in the English Language.

Sample size

By using single proportion sample size calculation (Charan & Biswas, 2013), Also, the prevalence value used in the single proportion sample size formula was withdrawn from a study by (Ahmed et al., 2019) [11,12].

Statistical analysis

The data used in this study was set and analysed by using the Statistical Package for Social Science Software (SPSS) version 25.0 for Windows Microsoft. Also, Microsoft word and Excel have been used to generate graphs, tables etc. The analysis of the prevalence of text neck among academic staff was done via descriptive statistics. The analysis was done by Chi-Square test to find the differences for participants' age, usage duration, duration of pain, and pain severity with different elements such as time per hours and per week. Results on continuous measurements are presented on Mean \pm SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance [13].

RESULT

A total of 117 academic staff members at IIUM were included in this study. In terms of gender, the number of academic staff who participated in this study were roughly even. The sample included 59 males (50.4%) and 58 females (49.6%) as in (Table 1), The mean age of participants in this study was (SD=38.38 \pm 6.05). the distribution of age in relation to responses accordingly, 74 participants age fall between 30 to 40 years old (63.2%), 33 participants age ranging from 41 to 50 years old (28.2), 6 participants ages from 51 to 60 years old (5.1%), and only 4 participants ages below 30 years old (3.4%) (Table 2) [14].

Table1: Gender distribution of academic staff studied.

Gender	No. of patients	%
Female	58	49.6
Male	59	50.4
Total	117	100

Table2: Age distribution of academic staff studied.

Age in years	No. of patients	%
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<30	4	3.4
30-40	74	63.2
41-50	33	28.2
51-60	6	5.1
Total	117	100

The duration of usage of mobile phone for working purpose has a significant value (P<0.001), mostly the participants' usage duration ranged from one to five hours (68.4%), following were those who use it less than one hour (27.4%), and least were for those who use it for more than five hours (4.3%) (Table 3).

Table3: The duration of usage of mobile phone for working purpose.

Duration of usage of mobile phone for working purpose	Gender		Total	P value
	Female	Male		
<1	8(13.8%)	24(40.7%)	32(27.4%)	P<0.001*
1-5	49(84.5%)	31(52.5%)	80(68.4%)	
>5	1(1.7%)	4(6.8%)	5(4.3%)	
Total	58(100%)	59(100%)	117(100%)	

Furthermore, mobile phone usage and its relation to posture when using a mobile were analysed as well. The posture analysis was according to the body position and the dominant handheld mechanism when using the mobile phone. The body position when using a mobile phone has a significant value (P=0.073), the positions that were mostly selected by the participants were either lying down or in a sitting position. The most preferable position chosen by the participant when using the mobile phone was in a sitting position (71.8%) as compared to the lying down position (28.2%) (Table 4)[15].

Table4: The body position when using a mobile phone.

The body position when using a mobile phone*	Gender		Total
	Female	Male	
Lying down	12(20.7%)	21(35.6%)	33(28.2%)
Sitting position	46(79.3%)	38(64.4%)	84(71.8%)
Total	58(100%)	59(100%)	117(100%)

In a like manner, the handheld mechanism of significant value (P=0.002) includes holding the mobile phone with one hand, two hands, or both prior techniques. Most of the participants

handheld technique was with two hands (50.4%) as compared to one hand handheld technique (47.9%), only one participant selected both techniques (1.7%) (Table 5).

Table5: The dominant handheld technique when using the mobile phone.

Prevalence of neck pain *	Gender		Total
	Female	Male	
No neck pain	26(44.8%)	43(72.9%)	69(59%)
Have neck pain	32(55.2%)	16(27.1%)	48(41%)
Total	58(100%)	59(100%)	117(100%)

Upon analysing the results of neck pain and its prevalence, a significant value resulted (P=0.002) with almost 48 of 117 participants have neck pain with various severities. It is important to note that there is an uneven result in different genders among those who have neck pain, it was found that female participants of those with neck pain (55%) are more than males with neck pain (27.1%) (Table 6)[16].

Table6: Prevalence of Neck pain

Prevalence of neck pain *	Gender		Total
	Female	Male	
No neck pain	26(44.8%)	43(72.9%)	69(59%)
Have neck pain	32(55.2%)	16(27.1%)	48(41%)
Total	58(100%)	59(100%)	117(100%)

The pain location was mostly in the neck area and has a significant result (P=0.002), the other areas which have pain are together with the neck and either left or right shoulder. The neck's area pain (25.6%) alone is more than other areas such as neck with left shoulder (3.4%) and neck with right shoulder (12%). Also, those who suffer neck pain are mostly females as compared to males (Table 7).

Table7: Pain Areas

Pain Area *	Gender		Total
	Female	Male	
No pain.	26(44.8%)	42(71.2%)	68(58.1%)
Neck.	23(39.7%)	7(11.9%)	30(25.6%)
Neck., Left Shoulder.	3(5.2%)	1(1.7%)	4(3.4%)
Neck., Right Shoulder.	6(10.3%)	8(13.6%)	14(12%)

Neck., Right	0(0%)	1(1.7%)	1(0.9%)
Shoulder., Left			
Shoulder.			
Total	58(100%)	59(100%)	117(100%)

DISCUSSION

The results presented in the previous chapter delivered an alarming data for the presence of text neck syndrome among university academic staff in international Islamic university Malaysia, the prevalence was 41% which is considered quite high ($P=0.002$). Our study is in line with, which expressed that the over usage of mobile phones could result in substantial stress to the neck area and musculature causing discomfort and eventually postural changes. Also, our findings coincides with the findings of a study conducted by which claimed that the excessive usage of smartphones leads to neck pain and postural malalignments. Furthermore, our study results are in line with studies from conducted from 2017 and 2020 regarding text neck syndrome. For instance, claimed, that there is an association with using a mobile phone and disorders of the musculoskeletal system, which focus mainly on the neck area. Similarly, study concluded that using a handheld device such as a smartphone for a longer durations leads to musculoskeletal neck pain both in children and adults. In a like manner, study results demonstrated a clear association between the prolonged usage of mobile phone and neck pain among the participants. The findings of our study are consistent with the study conducted by which revealed that the longer duration spent using a smartphone has a strong interrelation with increased neck pain complaints. Likewise, a study targeted the Goa population in India targeting 500 participants using the neck disability index (NDI) to evaluate the pain intensity, the data of their study showed that 94% of the population had experienced neck pain due to smartphone usage, the pain severity from their study exposed that 60% of participants had mild disability, followed by 35% had a moderate disability and 5% has nil disability. The analysis of their study supports the hypothesis that there is a significant association between mobile phone usage and neck pain. Furthermore, the most recent studies regarding text neck syndrome in 2020 were also in line with our study. According to findings, it was founded that one fourth of their participants of medical students complain of text neck syndrome symptoms and that most of participants has lower level of awareness regarding the cause and condition. In contrast, recent evidence from study which was conducted in University Sains Malaysia with only 20 participants using a phone application revealed that 60 per cent of participant had an awareness of text neck syndrome. The most recent study via, regarding text neck syndrome was conducted in Saudi Arabia in Jeddah with 428 medical students, the study showed significant findings that are aligned with our study regarding the association of mobile phone usage and text neck syndrome. In addition, they also noted two significant factors which are the usage time and degree of neck angle when using smartphone which are also important factors in our study. All these studies listed above showed that text neck

syndrome prevalence is indeed high and occurs more frequently among smartphone users in the general population.

Apart from that, the academic population in universities is also subjected to neck disabilities due to smartphone usage similarly like the general population. The reports from 2018 and 2019 from multiple studies in several countries build an existence evidence of the prevalence of text neck among academic populations. For instance, a cross-sectional study conducted in Lahore state in Pakistan at Akhtar Saeed Medical and Dental College which targeted 101 medical students, the study revealed that 61% of participants complained of neck pain with varying intensities. Likewise, a study conducted in Ahmedabad college in India focusing on 100 physiotherapy students who use smartphones excessively, NDI scale was used to evaluate the pain severity, their study results showed a high prevalence ($P=0.001$) of neck pain among the targeted population, their study concluded that excessive mobile phone usage led to neck and thumb disabilities which eventually result in long term postural disabilities. Similarly, a cross-sectional study targeted 779 undergraduate students in Australian and Thai universities, the study reported that the most painful area of the body is the neck area (32.50%) and specifically with those who attained flexed neck posture. Also, several studies in 2019 targeted the academic students in universities and all of them concluded that text neck is common among academic students who use mobile phones for a longer duration

Moreover, the studies conducted on the academic staff of universities and text neck are scarce and there is an obvious research gap pertaining to the current scope of this study, thus it is believed that this is the first study that targets the university academic staff and text neck syndrome. Nevertheless, the results of this current study contradict with the claims of Damasceno et al. (2018) that there is no association between mobile phone usage and neck pain [17].

On top of that, a significant prevalence of neck pain among the female gender (55.2%) as compared to the male gender (27.1%) is observed in the resulted data. In fact, this is aligned with some studies which claim that females are more prone to neck pain as compared to males concerning excessive mobile phone usage. Identically, the analysis supports the data from a study conducted by which has more females (57%) as compared to males (43%) suffering from neck pain due to prolong mobile phone usage. Moreover, study claimed that females who use mobile phone devices had a significantly high neck disability index score as compared to males ($p<0.001$). In a like manner, stated that female students were more prone to have text neck syndrome as compared to male students. The results of this current study pertaining to gender difference and neck pain when using a mobile phone build on existing evidence that females tend to develop text neck as compared to males [18].

Besides, our study results revealed that the posture of the body and handheld mechanism when using a mobile phone device contribute to developing text neck syndrome. The postures of the body discussed in this study were lying down position and sitting position, majority of body postures when utilizing mobile phone were in sitting position (71.8%) as compared to lying down position (28.2%). In fact, this is considered as a

contributing factor to developing neck pain because of the developing of a higher degree of head flexion angle, this is also supported by which study focused on the head flexion angle when using a mobile phone device, the study claimed that head flexion angle was significantly far greater ($P=0.05$) while sitting as compared to standing position. Furthermore, the handheld mechanism is a contributing factor to developing neck pain, in the current study the handheld mechanisms with significant value ($P=0.002$) mostly used was two hands (50.4%) as compared to one hand (47.9%). This analysis supports the claims that holding a mobile phone with two hands and texting impose a greater load on neck muscles as compared to holding with one hand.

CONCLUSION

In summary, the presents study demonstrated the prevalence ($p=0.002$) of neck pain among smartphone users of university academic staff in International Islamic University Malaysia. It also depicted the importance of posture while using the mobile phone device and explained the faulty posture that contributes to the development of text neck syndrome. This supports the requirements for public health awareness toward academic staff and form educational programs to avoid the musculoskeletal risks that might occur in their work environments from the prolonged usage of smartphones [19].

Limitation of the Study

This study's results were acquired from self-administered questionnaires, thus the possibility for bias could occur such as recall bias and information bias due to different decisions and comprehensions among the university academic staff during the filling out of the questionnaires. Apart from that, the sample size is quite small and there is no medical assessment and examination to confirm the existence of text neck syndrome among the university academic staff which produces another concern. As population for our study was more or less homogenous so small sample does work well. In case of complex data, it may not work in same way so, complex sampling designs that incorporate clustering and unequal probability of selection may be used [20-23].

Recommendations for Future Research

It is recommended that future studies should focus on the recruitment of a large number of participants including university academic staff from different universities in Malaysia to obtain reliable text neck syndrome prevalence. Besides, there should be more studies focusing on the university academic staff and the musculoskeletal disorders risk in their work environments to find proper guidelines to avoid any health issue. We believe that the future research regarding this scope will stress the needs for awareness regarding academic staff and mobile phone usage, unlike other studies which targeted the students only and neglected the academic staff population. Moreover, we believe that this research can be extended further in the future to device preventive measures regarding text neck

syndrome and design exercise program for sufferers based on the available rehabilitation programs [24-27].

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