



# **Effectiveness of Mobilizations along With Hot Therapy versus Mobilizations for Management of Chronic Neck Pain Due to Over Usage of Smart Phones among Young at LUMHS Jamshoro**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. Authors JV, SMA and TN designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author MKM give the guidelines. Authors SAS and KS managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript.*

## **Article Information**

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## **ABSTRACT**

**Objective:** To determine the effectiveness of mobilizations along with hot therapy versus mobilizations for the management of chronic neck pain due to over usage of smart phones among young.

**Materials and Methods:** This interventional clinical trial was conducted at OPD, Institute of Physiotherapy & Rehabilitation Sciences (IPRS) in Liaquat University Medical and Health Sciences Jamshoro (LUMHS). All the individuals from LUMHS Jamshoro including students, age 18-35 years and either of gender were included. All the individuals were divided in two groups (group A and group B). Cases of group A were underwent management of mobilization with hot therapy and

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cases of group B underwent only mobilization management. Outcome was observed in the terms of decrease the pain during work, reading and sleeping. All the data was recorded via study proforma. **Results:** Total 64 individuals were studied. Mean age was 26.2±4.2 years in group A and 28.6±5.3years. Males were in majority in both groups. According to the pain assessment on movement, mild pain was in 18.8%, moderate pain was 50.0%, severe pain was in 12.5% and very severe pain was in 18.85 of the patients of group A. However in group B most of the patients 93.8% had mild pain and 6.2% patients had severe pain, while no any patients with moderate pain and very severe pain was found in group B. After treatment pain was more decreased in patients of group A as pain during work, reading and sleeping was significantly higher in only mobilizations treatment group as compared to those underwent mobilizations with hot therapy treatment, p-values were quite significant. **Conclusion:** It was concluded that the treatment of mobilization with Hot pack was more effective than treatment only mobilization.

*Keywords: Smart phones; young adults; neck pain; mobilizations; hot therapy.*

## 1. INTRODUCTION

The smartphones became an essential part of human's life due to global village. It contains various features which allow persons to use in daily activity such as keeping pictures, memories, personal data, and is a major source of communication. Neck pain is a massive load on human body; it is concerned with change in movement, coordination and daily activities of life. Neck pain is the 4<sup>th</sup> leading cause of disability, due to this reason many studies were conducted worldwide for the prevention, intervention and to know the exact mechanical cause of neck pain. Among the handheld devices such as smartphones have become much predominant in People's lifestyle nowadays, that's why users of smartphones are increasing day by day [1]. Nowadays most of the people use smartphones in their daily lives including for both occupational and leisure activities, thus the users of smartphones increasing rapidly as a result [2]. To adopt a poor posture while using a smartphone can cause various physical problems such as neck and shoulder pain and muscle fatigue. Neck pain can also be caused by the muscle fatigue and over stress of the ligaments due to poor posture while using smartphone [3]. Kim et al. [2] stated that "when using a smartphone, individual with mild neck pain tend to bend their neck slightly more than individual without neck pain". A plenty of text button usage options in the form of SMS (short message service), Whats App, Viber, and social networking applications like Facebook, Twitter, and Skype are available through which smartphone users may communicate apart from voice services. Time period of usage of smartphones for social media, internet surfing and for playing games may be considered as

possible risk factors which may increase hazards emerging from the use of mobile Phones [4,5]. The incidence of musculoskeletal disorder (MSD) of hand, wrist, forearm, arm, shoulder and neck has been increasing all over the world due to prolonged, forceful, low amplitude and repetitive use of handheld devices [6]. Particularly, most university students (91%), in the age group of 18-35 years use smartphones more than other age groups as compared to those who don't use android mobile phone. A smartphone provides various types of conveniences for its users in shape of internet, however prolong usage of smartphones may cause addiction. Texting is the most popular mobile data service, according to BBC reports almost 90 billion messages were sent per day using chat apps and 17.6 billion SMS messages in 2012 [7]. Over 3 billion people currently using MP's worldwide showing that the use of mobile phones has increased radically, [8]. While commuting in public transportation, people usually bend their neck [9]. Mostly students tend to sacrifice their sleep and other activities so because of that cannot concentrate and give proper time to their studies. However prolonged periods in flexed neck position is linked to neck and shoulders pain [10]. Due to widespread use of smartphones by the Young Adult of LUMHS are more prone to develop health hazards like neck pain, headache, tension, sleep disturbance, fatigue, depression and dizziness. It is the disturbed ergonomic which is below the height of eyesight or excessive watching or texting on handheld device for prolong period of time. This study has been conducted to compare the effectiveness of mobilizations along with hot therapy versus mobilizations for the management of chronic neck pain due to over usage of smart phones among young.

**2. MATERIALS AND METHODS**

This interventional clinical trial was conducted at OPD, Institute of Physiotherapy & Rehabilitation Sciences (IPRS) in Liaquat University Medical and Health Sciences Jamshoro (LUMHS). All the individuals from LUMHS Jamshoro including students, age 18-35 years and either of gender were included. All the young adults with any traumatic and surgical condition, not using smartphone and adults over age of 35 years were excluded. Study duration was 6 months from February 2019 to July 2019. After taking complete medical history the patients transfer to the treatment room on the standard mobilization table in prone position. All the individuals were divided in two groups (group A and group B). Cases of group A underwent management of mobilization with hot therapy and cases of group B underwent only mobilization management. Pain was assessed and categorized as mild, moderate, severe and very severe by using visual analogue scale. Outcome was observed in the terms of decrease the pain in neck region, improve the range of motion in cervical region, reduction in muscle spasm, improve the activities of daily livings, postural correction and get rigid from sever neck pain. All the data was recorded in self-made proforma. Data was entered in SPSS Version 20.

**3. RESULTS**

Total 64 individuals were studied. Mean age was 26.2±4.2 years in group A and 28.6±5.3years in group B. Males were 62.5% and females were 37.5% in interventional groups A, 56.2% were males and 43.8% were females in group B. Table 1.

According to the pain assessment on movement, mild pain was in 18.8% cases, moderate pain was in 50.0%, severe pain was in 12.5% and very severe pain was in 18.8% of the patients of group A. However in group B most of the patients 93.8% had mild pain and 6.2% patients had severe pain, while no any patients with moderate pain and very severe pain was found. Table 2.

After treatment pain was more decreased in patients of group A as most of the patients replied that they can work as much as wanted in contrast to group B (p=0.001). Similarly on the pain assessment during reading most of the patients of group A said that, they can read as much as without pain and as much as with slight pain as compared to group B (p=0.001). However according during sleeping majority of the patients of group A replied that they sleep without any trouble as compared to group B (p=0.001) Table 3.

**Table 1. Mean age and gender comparison among both groups n=64**

Treatments	Treatments			
	Mobilization + hot pack		Mobilization	
Variable	Frequency	Percentage	Frequency	Percentage
Male	20	62.5	18	56.2
Female	12	37.5	14	43.8
Age (mean±SD)	26.2±4.2 years		28.6±5.3years	

**Table 2. Comparison of only mobilization and with hot pack with respect to pain n=64**

Pain	Treatment			
	Mobilization		Mobilization + hot pack	
Pain at movement	Frequency	Percentage	Frequency	Percentage
Mild pain at the movement	6	18.8	30	93.8
Moderate pain at the movement	16	50.0	Nil	Nil
Severe pain at the movement.	4	12.5	02	6.2
very severe pain at the movement	6	18.8	Nil	Nil
Before treatment VAS (mean±SD)				

**Table 3. Comparison of mobilization with hot pack versus mobilization with respect to personal care and Work n=64**

Variable	Mobilization		Mobilization +hot pack		p-value
	Frequency	%	Frequency	%	
<b>Work</b>					
Work as much as wanted	6	18.8	12	37.5	
Only usual work	4	12.5	14	43.8	
Most of usual work but no more	16	50.0	2	6.2	0.001
Cannot do usual work.	6	18.8	4	12.5	
<b>Reading</b>					
Read as much as without pain	4	12.5	10	31.2	
Read as much as with slight pain	2	6.2	10	31.2	
Read as much as with moderate pain	8	25.0	6	18.8	0.001
Cannot read as much as with moderate pain	12	37.5	4	12.5	
Cannot read as much as with severe pain	6	18.8	2	6.2	
<b>Sleeping</b>					
No trouble in sleeping.	4	12.5	14	43.8	
slight disturbance less than one hour	12	37.5	6	18.8	
mildly disturbed 1-2 hours	6	18.8	4	12.5	0.001
moderately disturbed 2-3 hours	10	31.2	4	12.5	
Greatly disturbed	Nil	Nil	4	12.5	
Overall VAS (mean±SD)					

#### 4. DISCUSSION

Billions of people use cellphone devices worldwide. Smartphone has become central to our daily lives. The number of smartphone users has increased tremendously over the last few years. The over usage of smartphones sways our body cast of mechanics in deranged manner which may cause neck, shoulder, arm, upper back along with whole body pain.

In this study mean age was 26.2±4.2 years in group A and 28.6±5.3 years in group B, while males were in majority in both groups. On other hand Yıldırım A et al. [11] reported that mean age of group A was 32.3±7.0 years and mean age of group B was 33.0±6.3 years. Neck pain due to usage of smartphone is also considered as an amplifying sharp global burden affecting mostly in teenagers in every society. Neck pain is common in students due to over usage of smartphone. The present study shows that a longer duration of smartphone usage causes a higher degree of neck pain. Lee and Seo (2014) noted that a higher degree of smartphone addiction may cause reduction in ability to recognize neck posture.

In other studies stated that based on age of students adopt a static and flexed spinal posture while texting on mobile phones, which is the commonest posture that contributes the pain of neck [10,12,13]. The recurrent forward head flexion while seeing downward at screen of smartphone for a longer duration can lead to loss of normal curvature of spine which cause increase of stress toward cervical spine and headache. Being descriptive in nature, the present study is aimed to identify neck pain due to over usage of smartphone among the students of LUMHS who were included from a population based sample of students. According to a previous study of Fahad D. Alosaime et al. out of 47 study subjects, 27.2% stated that they spend more than 8 hours per day in using their smartphone. 75% used at least 4 applications per day primarily for social networking. These results showed that the total time spend using a smartphone was significantly associated with neck pain therefore the results of this previous study are consistent with the current study which reported that out of 32 study of subjects who used smartphone for more than 30 minutes a day, while in this study it is reported that neck pain due to over usage of smartphone among students of LUMHS Jamshoro was about 93.8% mobilization with hot packs were effective in

those who are using their smartphone not only while standing or sitting but also in lying and side lying posture. This data suggested that when high-duration smartphone users' experiences neck pain, they became more distressed and aware of their pain. I have to recommend this technique should be used for further research among the old age people whom are suffering from neck pain with degenerative changes in the cervical spine.

## 5. CONCLUSION

It was concluded that the treatment of mobilization with Hot pack was more effective than treatment only mobilization. Mobilization along with hot pack for neck pain to decreases and increase the range of motion in cervical region for those persons who are suffering from neck pain. It is recommended that, over use of smart phones should be avoided and physiotherapist should follow this technique for the benefits of the patients care.

## CONSENT

Verbal informed consent was taken from the patients.

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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