

An Empirical Study on Effect of Yoga Practices on Chronic Neck Pain with special reference to Online Entrepreneurs

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ABSTRACT

Background – Neck pain is turned to be a serious problem among persons who use smartphone/computer for long hours. Online entrepreneurs spend their most of time on laptop or smartphone because of nature of their work. Due to continuous stair at device, the problem of chronic neck pain arises among them. Yoga is an effective tool to cure neck pain. With the help of yogic practices, spinal pains can be reduced such as back pain and neck pain. Also, yoga provides a feel of well-being to workers engaged in excessive online activities.

Purpose – Online entrepreneurs spend long working hours on electronic devices including mobile, laptop and computer etc. These continuous working hours on devices are becoming main cause to increase chronic neck pain among online entrepreneurs because of stable head posture. Yoga is found as a cost-effective intervening tool in reducing chronic neck pain. This paper is an attempt to examine the effectiveness of yoga practices on chronic neck pain among online entrepreneurs.

Methodology – A group of 12 online entrepreneurs was taken as experimental group of the study. Out of these 12 participants, 6 were male and 6 were female. A set yoga regime was followed by each participant for three months to examine the effectiveness of yoga in chronic neck pain.

Findings – After three months of yogic intervention period, it was identified that yoga is an effective tool to cure chronic neck pain. Each participant felt improvement in neck motions and frequency of chronic pain was also less as compared to before intervention period.

Practical Implications – This study recommends that online entrepreneurs should do yoga practices in order to reduce neck pain which arises due to continuous use of electronic devices such as smartphone, laptop or computer. These yoga practices should be performed under the guidance of qualified instructors to gain maximum benefit of pain reduction and well-being.

Key Words: Neck pain, Online entrepreneurs, Yoga.

I. INTRODUCTION

Online entrepreneurship is an emerging form of business in this digital era. Online entrepreneur is a person who run his/her business via internet. They need to work on electronic devices such as smartphone, laptop, palmtop, computer etc. These long hours spent on electronic devices creates neck pain among users as steady head posture is needed to focus upon. So, chronic neck pain a very common problem among online entrepreneurs. This chronic neck pain becomes severe when not taken care by patients. Neck pain can be divided into four types viz, Axial Neck Pain (focused on one part, doesn't move in other direction),

Reticular Pain (pain radiate to arm, shoulder and hand), Referred Pain (felt in a location, not on source) and Myelopathic Pain (arise from the compression of spinal cord in neck). Long-term chronic pain creates problem of cervical. Musculoskeletal problems such as neck and hand pain are often seen among students who are addicted to smartphone (Shah & Sheth, 2018). A high-level neck pain was seen among employees who had to use computer for long working hours due to location of the computer (Ye, Jing, Wei, & Lu, 2017). A significant association between long hours of computer and neck pain was examined in school students because of head posture (Smith, Louw, Crous, & Grimmer-Somers, 2009). While continuous

computer use, there is a significant relationship between neck pain and head posture. Academic staff are having neck pain during computer work because they had a forward head posture. This is the reason that academic staff are prone to high risk of job-related neck pain (Chiu et al 2002). Online entrepreneurs also come under this category as they need to work for long hours on electronic devices. To reduce neck pain, yoga practices are used as cost effective tool which also helps in well-being of patients. In various research studies, it was found that yoga is an effective tool to deal with spinal pain viz, neck pain and back pain. A review study conducted by Crow, Jeannot, & Trehwela (2015) stated that more than five hundred patients from six studies experienced that Iyengar yoga is an effective tool in reducing neck pain. A randomized controlled trial revealed reduction in neck pain intensity and improvement in functional disability with the help of yoga (Kim, 2016). Chronic neck pain is better cured with yoga as compare to home-based exercises and yoga also enhance quality of life along with reduction in chronic neck pain (Cramer, Lauche, Hohmann, Ludtke, Haller, Michalsen, & Dobos, 2013). Yoga practices are effective in treating neck pain as well as helps to improve quality of life and psychological well-being (Michalsen, Traiteur, Ludtke, Brunnhuber, Meier, Jeitler, & Kessler, 2012).

II. LITERATURE REVIEW

AlAbdulwahab, Kachanathu, & AlMotairi, (2017) conducted a study on impact of smartphone addiction on neck pain. The objective behind conducting this study was to examine the level of smartphone addiction and to identify the its relationship with neck disabilities among young adults. Primary data on 78 subjects was collected with reference to Smartphone Addiction Scale and Neck Disabilities Index. It was found that there was a clear association between smartphone association and neck disabilities. Ostensvik, Veiersted, & Nilsen, (2009) organized a study on association between long period with sustained low-level muscle activity in the neck and pain. It was found that activities of more than 8 minutes increased risk for neck pain. Green (2008) examined previous literature to find the association between computer use and neck pain. It was identified that constant use of computer leads to neck pain in users. Smith, Louw, Crous, & Grimmer-Somers (2009) conducted a study to identify the impact of computer use on headache and neck pain. The objective to conduct this study was to find relationship between computer use and neck pain and headache among school students. It was found that there was a concern between neck pain and computer use and it was recommended that students need to be educated about the postures while working on computer so that neck pain can be reduced. Malik and Devi (2018) also mentioned in their study that neck pain is one of the main problems which arises due to the excessive use of smartphone. Ostergren, Hanson, Balogh, Ektor-Andersen, Isacsson, Orbaek, &

Isacsson, (2005) conducted a study on Incidence of shoulder and neck pain in a working population. The objective of the study was to assess the impact of mechanical exposure on shoulder and neck pain. The result showed a high association between mechanical exposure and psychological work-related factors on spinal (neck and shoulder) pain. Chiu, Ku, Lee, Sum, Wan, Wong, & Yuen (2002) also conducted a study on risk factors for neck pain among academic staff. The aim to conduct this study was to identify the factors which causes neck pain among university academic staff. It was found that head posture during computer work creates neck pain problem among users. Ye, Jing, Wei, & Lu (2017) organized a cross-sectional study on risk factors of neck and back pain in workers who were using computer. The objective of the study was to examine the factors of risk of non-specific neck pain and lower back pain in workers who were spending much time on computer. The main risk factor which was responsible for neck pain was that computer monitor was not in front of users. Shah and Sheth (2018) conducted a study to compare the relationship between smartphone addiction and neck syndrome and thumb disorder. The main objective of the study was to examine the relationship between smartphone addiction and neck as well as hand musculoskeletal disorders. Data was collected in three scales SAS (Smartphone Addiction Scale), NDI (Neck Disability Scale) and CHDQ (Cornell Hand Discomfort Questionnaire). By applying spearman correlation, it was found that there was a moderate significant relationship between smartphone addiction and neck disability. It was also said that neck problem can be severe by the laps of time if not resolved in short-term. Cramer, Lauche, Hohmann, Ludtke, Haller, Michalsen, & Dobos (2013) organized a randomized controlled trial of yoga and home-based exercise on chronic neck pain. The aim to conduct the study was to identify the impact of Iyengar yoga as compare to exercise on chronic neck pain. After nine weeks of yoga session, it was found that experiment group attained a better mental quality of life and neck pain was less as compare to the control group. Participants felt improved motion of neck as compared to other group which was not given intervention. It was also examined that yoga was more effective practice to reduce neck pain as compare to home-based exercise. Michalsen, et al (2012) also organized a randomized controlled trial on yoga for chronic neck pain. The main aim of the study was to examine the effectiveness of Iyengar yoga on chronic neck pain. It was found that pain in motion was reduced with the help of yoga. Also, yoga was found as a tool to improve psychological well-being. Crow, Jeannot, & Trehwela (2015) examined previous literature to identify effectiveness of Iyengar yoga on spinal pain including neck pain. The aim behind conducting this study was to look upon the effectiveness of yoga on neck and back pain or spinal pain. A total of six research studies were examined including 570 participants and it was found that Iyengar

yoga was an effective tool for spinal pain as compare to control groups. Iyengar yoga was identified as a strong evidence for curing spinal pain especially chronic neck pain. Kim (2016) evaluated the effectiveness of yoga on chronic neck pain with the help of a randomized control trial. The main objective of the study was to find out whether yoga is an effective tool to manage neck pain. From available literature, three studies were reviewed and it was found that yoga is an effective tool in reducing neck pain. It was said that patients having chronic neck pain can manage their neck pain themselves by doing certain yoga practices and it will be helpful for them in pain-relief.

III. OBJECTIVE OF THE STUDY

The main objective to conduct this research paper is to examine the effectiveness of yoga practices on chronic neck pain among online entrepreneurs. This research paper is an attempt to look towards the benefit of various yoga practices on neck pain with special reference to online entrepreneurs.

IV. MATERIALS AND METHODS

Online entrepreneurs were taken as sample of the study who were spending more than 8 hours on electronic devices such as smartphone, laptop, computer etc. These entrepreneurs were having neck pain due to continuous forward head posture. Data was collected in form of questionnaire by participants on the basis of their personal experience. Descriptive statistics was applied on collected data.

4.1 Sampling Technique

To fulfil the objective of the study, purposive sampling method was used. 12 participants from Delhi were taken as sample or experimental group. Out of these 12, 6 were male and 6 were female. Age of participants was between 28-40. All the participants were online entrepreneurs and spending more than 8 hours on electronic devices due to nature of their work.

4.2 Inclusive criteria

Online entrepreneurs from Delhi who were having neck pain were included as experimental group to achieve objectives of this research paper. All the participants were facing neck pain problem because of nature of their job and they were looking for an effective tool in comparison to medication and yoga fulfilled their need for the same.

4.3 Exclusion criteria

Online Entrepreneurs who were outside Delhi were excluded. Online entrepreneurs who were having chronic neck pain and taking medication were excluded from the study. This exclusion criteria was decided on the basis of objectives of the study.

4.4 Intervention

Experimental research design was used throughout the study. A yoga regime was set by considering neck pain problem among online entrepreneurs. Experimental group

practiced this yoga regime for a period of three months. They practiced these yoga exercise for 45 minutes on daily basis.

Table No. 1: Intervention Schedule

S. No.	Yogic Practice	Timing (In Minutes)	Name of the practices
1	Meditation	5	Guided Meditation + Beginning Prayer
2	Asanas	15	Makarasana, Sakanda-Chakrasana, Sarpasana, Bhujangasana, Dhanurasana
3	Pranayama	10	Nadi-Shodhana Pranayama & Bhrumari Pranayama
4	Mantra-Meditation	5	Ajapa-Japa (in Vajrasana)
5	Relaxation	10	Yoga-Nidra
Total Time of the Practice			45 minutes

A 45 minutes session was made and each participant followed the same schedule each day throughout three months. These asanas were instructed by a well-trained yoga teacher. Each day, schedule was initiated with meditation and prayer. Then, various asanas were practiced such as Makarasana, Sakanda-Chakrasana, Sarpasana, Bhujangasana, Dhanurasana, Nadi-Shodhana Pranayama & Bhrumari Pranayama. At the end, a ten-minute yoga nidra session was also practiced for relaxation. After a period of two months, participants started recognizing improvement and they felt that chronic neck pain was decreasing.

4.5 Procedures

This study was conducted in Delhi. A total of 12 online entrepreneurs (6 males and 6 females) participated and practiced a set yoga regime for three months. Various elements regarding chronic neck pain were collected before and after three months of yogic regime. These elements were collected with the help of self-made questionnaire to identify the effectiveness of yoga in chronic neck pain.

V. RESULT & DISCUSSION

A sample of 12 participants was chosen as sample size. All the participants were online entrepreneurs and spending more than 8 hours on smartphone or laptop. Each participant was having chronic neck pain. Yoga practices were applied as an intervention tool to reduce neck pain problem among these online entrepreneurs. The aim to conduct this study was to identify the effectiveness of yoga practices on neck pain. A continuous yoga session of 45 minutes each day was followed by participants to achieve this objective. Data was collected before and after three months of yogic sessions. Before and after statistics are as follows:

Table No. 2: Before Intervention Statistics (Regarding Neck Pain Elements)

Joint Movement	Able to perform (%)	Not able to perform (%)
Forward Flexion (normal endpoint = 45 degrees)	40	60
Extension (normal endpoint = 45 degrees)	30	70
Right Lateral Flexion (normal endpoint = 45 degrees)	40	60
Left Lateral Flexion (normal endpoint = 45 degrees)	40	60
Right Lateral Rotation (normal endpoint = 80 degrees)	30	70
Left Lateral Rotation (normal endpoint = 80 degrees)	30	70

In this table, various elements related to neck pain are shown which were collected from online entrepreneurs before starting yoga practices. These elements include; forward flexion, extension, right lateral flexion, left lateral flexion, right lateral rotation and left lateral rotation. It was identified that most of the participants were facing problem in neck rotation including extension.

Table No. 3: Before Intervention Statistics (Regarding Problems due to Neck Pain)

Problems because of Neck Pain	Yes (✓) %	No (X) %
Swelling	80	20
Pain in Movement	70	30
Personal Care (washing, dressing)	50	50
Concentration	60	40
Work	60	40
Driving	60	40
Reading	70	30
Sleeping	60	40

This table is related to the problems which one faces in their daily life due to neck pain problem. This data was collected before starting yoga practices. Problems such as swelling, pain in movements, personal care, concentration, work, driving, reading and sleeping were considered as these all are affected by neck pain problem. It was identified that most of the online entrepreneurs were facing issues while performing these activities due to neck pain problem.

Table No. 4: After Intervention Statistics (Regarding Neck Pain Elements)

Joint Movement	Able to perform (%)	Not able to perform (%)
Forward Flexion (normal endpoint = 45 degrees)	80	20
Extension (normal endpoint = 45 degrees)	60	40
Right Lateral Flexion (normal endpoint = 45 degrees)	70	30
Left Lateral Flexion (normal endpoint = 45 degrees)	70	30
Right Lateral Rotation (normal endpoint = 80 degrees)	80	20
Left Lateral Rotation (normal endpoint = 80 degrees)	80	20

Various elements regarding neck pain were again collected from online entrepreneurs after three months of yoga practices. These elements include; forward flexion, extension, right lateral flexion, left lateral flexion, right lateral rotation and left lateral rotation. It was examined that most of the participants were now able to rotate their neck on both sides i.e., left and right. Lateral flexion of left and right was also improved. Participants were delighted by practicing yoga practices because these also helped them in well-being.

Table No. 5: After Intervention Statistics (Regarding Problems due to Neck Pain)

Problems because of Neck Pain	Yes (✓) %	No (X) %
Swelling	20	80
Pain in Movement	20	80
Personal Care (washing, dressing)	30	70
Concentration	30	70
Work	20	80
Driving	30	70
Reading	20	80
Sleeping	20	80

This table shows after yoga statistics related to daily life activities which are affected by chronic neck pain. It was identified that most of the online entrepreneurs were able to overcome these problems with the help of yoga practices. Outcomes were improved such as swelling was reduced, less pain intensity, concentration was increased and many more after the period of three months.

VI. CONCLUSION

Neck pain is becoming a critical problem among people who are using electronic devices for longer time period.

Online entrepreneurs have to spend their lots of time on devices such as mobile, laptop and computer. Due to nature of their work, online entrepreneurs face chronic neck pain problem. Continuous use of computer automatically creates neck pain problem among users (Green, 2008). Neck pain which was caused by over use of electronic devices created problem of flexion of the neck which is called 'text neck' or 'turtle neck posture' (Shah and Sheth, 2018). This chronic neck pain creates many problems due to which patients are not able to perform day-to-day activities. Yoga has been found as an effective tool in reducing neck pain among various studies. This study explains the effectiveness of yoga practices in curing chronic neck pain. Yoga is easily adopted by online entrepreneurs because of its cost-effectiveness and convenience. Most of the participants in this study felt improvement in neck pain. It was evident from three randomized control trial that yoga is an effective tool to deal with chronic neck pain (Kim, 2016). Neck pain threshold, range of motion and acuity was improved with the help of yogic practices (Cramer, Lauche, Hohmann, Ludtke, Haller, Michalsen, & Dobos, 2013). It is suggested on the basis of this study that yoga practices should be used by patients who are having chronic neck pain due to continuous hours of work on devices and forward head posture. It is a cost-effective and convenient tool which can be used by people who are having neck pain issue. More studies should be organized in this regard at broader level.

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