

Prevalence of Myofascial Trigger Points in Neck Pain With its Associated Risk Factors in Undergraduate Students of Physical Therapy Department of University of Lahore

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Highlights:

- Neck pain assessed through Neck Disability Index
- Three different Palpation techniques to assess trigger points
- Trigger points associated with different risk factors causing neck pain

Abstract:

A myofascial trigger point is a hyperirritable point in skeletal muscle that is associated with a hypersensitive palpable nodule. Myofascial trigger points occur in a quite proportion in students. Flat palpation, snap-ping palpation and deep palpation helps to assess the trigger points.

Objective:

The main objective is to find the prevalence of trigger points with neck pain associated with risk factors in undergraduate students of physical therapy department of University of Lahore.

Methodology:

It is a Case Series. Myofascial trigger points are related with neck pain and associated with several risk factors. Students of physical therapy department of university of Lahore are the main participants in the study. Data is collected through Neck Pain Disability Index for neck pain. The pain range is measured through Numeric Pain Rating Scale. Trigger points were then checked through palpation technique.

Results:

Neck Disability Index was used in assessing the neck pain. Numeric Pain Rating Scale was also

used to assess pain quality. Out of 150 students, 93 students had referred pain from neck region to other parts of the body which was calculated through the given NDI and one to one interviews. Palpation technique was further used to get better results. 62% students suffered from trigger points along with neck pain and associated risk factors.

Conclusion:

NDI was used to assess the referred pathways in neck pain. Palpation was used to get better results for trigger point's assessment.

Key Words:

Myofascial trigger points, Neck pain, Risk factors

Introduction:

A myofascial trigger point is a hyperirritable point that is associated with a hypersensitive palpable nodule. A trigger point is an irritable point that occurs in a muscle. There are various musculoskeletal problems associated with trigger points¹. Shoulder pain and neck pain are the most common though. MTrPs are too linked with myofascial syndrome. Myofascial pain syndrome affects different regions. It affects the sensory, motor and autonomic systems of the body². Changes associated with Sensory system involve feeling of uneasiness due to tingling sensations and other disturbances due to dyesthesia, hyperalgesia and referred pain. Motor deficits include inability to perform normal routine work due to severe pain caused by myofascial trigger points. Autonomic deficits include changes in skin temperature and

proprioceptive disturbances.³ MTrPs are termed as irritated points in a muscle band. They are two types indicated as active points and latent points. Active MTrPs produce pain along with reproducing its symptoms where as latent MTrPs tend to become active later. These both types of MTrPs cause muscle changes, impaired motor recruitment and decreased muscle functions. Basically concept of MTrPs along with the pain syndrome is difficult to understand. Both types of trigger points, the active and latent one cause neck and shoulder pains causing hindrance for them in performing activities and participating in daily life activities. When pressure is applied on the trigger point then the pain is not only produced in a particular area but also is referred. The referred pain rarely interacts with the dermatological pathways. This area of referred pain differentiates between a trigger point and fibromyalgia.^{4,5} Trigger points may occur after an initial injury to muscle fibers. Injury may include a repetitive micro-trauma or any noticeable traumatic event. TrPs causes shear stress on the region of the muscle and causes pain. The intensity of force applied increases then the muscle gets tired, in other words it gets fatigued. When the muscle gets fatigued then activation of trigger points occurs. Trigger points occur in response to some mechanical stress. Such as doing any repetitive daily routine activities that stresses the spine, wearing handbags, holding a poor posture for a long period of time, bad neck postures while studying, bad spine postures while while driving or by performing any recreational activity or by lifting heavy objects. MSK pains are most common nowadays and most occurring pain is in the region of neck which in turn causes problem in carrying out the daily life activities⁶. Trigger points do not emerge in a symmetrical pattern. But here's where things get complicated: People with fibromyalgia may have both tender points and trigger points. It's not uncommon for people with fibromyalgia to also have myofascial pain syndrome.. Difference that lies between both of them is that fibromyalgia points do cause

referred pain whereas Trigger points pain is referred^{7,8}. Trigger points are complex: They are both easy to pin-point but hard to diagnose. They can directly cause muscle pain, which may be apparent to detect. But they're elusive because they can mimic other problems. Myofascial pain syndrome and fibromyalgia are often confused for one another^{9,5,10}. Comparing the stats with other countries, region of neck constitutes more pain and is the 4th highest condition. 30% to 50% accounts pain in neck region from past 12 months. This pain has caused them great problems to carry on with their daily life activities. ACC reports the 12 months prevalence estimates for neck pain associated with trigger points in the adult population which lie between 30% to 50% and accounts for 15% global burden of the disease^{11,12,13}. There are many responses in association with trigger points which occur. Such as LTR also known as local twitch response which is actually a sudden contraction of a muscle that normally occurs after when dry needle is inserted into the region of the trigger point¹⁴. Jaw pain, earaches, or toothaches that just won't go away may actually be caused by a trigger point in the neck^{15,16}. The difference that lie between both of them is that Tender points do cause referred pain whereas Trigger points pain is referred. There are three palpation techniques used to assess trigger points. The techniques include flat, snap-ping(also known as pincer) and deep palpation¹⁷. Flat palpation is done on a superficial skin region. By sliding the fingertip across the group of the affected muscle, TrPs are assessed. The skin is also pushed across through one side and then to the other to feel the TrPs. Snap-ping palpation involves the use of only the thumb and the forefinger and the muscles are once held with these fingers are then pressed to check the presence of the irritable band underneath. The name itself indicated that how deep palpation is done. Here the pressure is applied way down the superficial area and the TrPs are then felt. Other studies also used to EMG to assess the trigger points^{9,18,19}. A spinal trauma like a whiplash from a car accident or any

sports related injury can activate trigger points. There many other factors which activate trigger points. No appropriate test is there for the assessment of TrPs. Several pathophysiological researches were done on how they were formed and what elicited the trigger points to take place. The local twitch response is a sudden contraction that occurs in response to dry needling in MTrPs. TrPs are usually confused with tender points of fibromyalgia. TrPs and fibromyalgia both cause pain. Some devices are also used to treat the myofascial trigger points. Such as like adjustable physical therapy ball and trigger point massage, these are the devices which are used to treat MTrPs in some cases.²⁰ Nowadays neck pain is very common among all individuals due to different reasons. Trigger points are mostly found with trigger points. Therefore, the rationale of my study is to find and assess that how neck pain links with trigger points and how different risk factors include and play a role in the formation of trigger points. Risk factors includes bad posture, over excessive activities done, driving, sleeping, recreational activities and personal care activities etc. So prevalence of myofascial trigger points in neck pain associating it with its risk factors in undergraduate medical students of Physical Therapy Department is checked.

Methadology:

It is a Case Series performed on the students of physical therapy department of University of Lahore. After obtaining written, informed consent, data was collected and prevalence will be calculated of patients suffering from myofascial trigger points in neck pain. Along with questionnaires, different pain rating scales were used. MTRPs were assessed through palpation through three methods (flat, pincer, deep palpation). Neck Disability Index was used to assess the neck pain and along with it referred pathways of neck pain were also assessed to find the presence of trigger points. Palpation was then carried out to confirm the presence of trigger points. It was performed to get better results. Inclusion Criteria was Students of

Physical Therapy Department, Age (20-25), Gender (Both male and Female) and Palpation Criteria. Exclusion Criteria was any Systemic Disease, any use of hypersensitive medication, any surgery of Upper Limb Percentages were calculated and prevalence was found from the collected data. Pie charts and tables are mentioned in the study.

Results:

The study includes 150 participants. The participants are students of physical therapy department of University of Lahore. 51 males and 99 females were included in the study. From the Figure 1 pie chart it can be observed that the highest percentage is 24.7 for those who find it painful to look after themselves and are slow in their own care. The lowest percentage is 10% for those who need some help to manage their personal care work. From the Figure 2 pie chart it can be observed that the highest percentage is 22.7 for those people who are not suffering currently and the lowest percentage is 13.3 for those who are suffering severe pain. From the Figure 3 pie chart it can be observed that the highest percentage is 23.3 for those people who are suffering from moderate headaches which come frequently and the lowest percentage is 10.7 for those who are suffering severe headache. From the Figure 4 pie chart it can be observed that the highest percentage is 24 in which students cannot concentrate at all and the lowest percentage is 10 who have fair difficulty in concentrating.

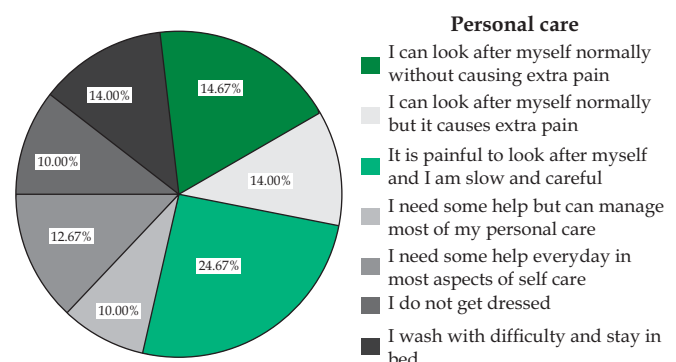


Figure 1: Demographics of Personal Care Pie Chart

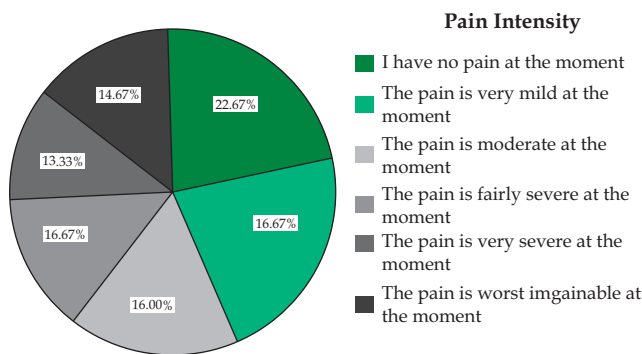


Figure 2: Demographics of Pain Intensity Pie Chart

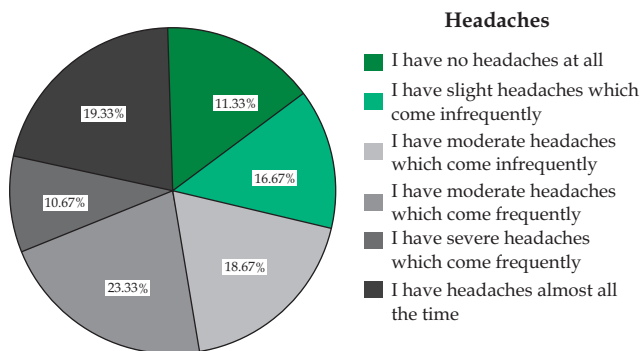


Figure 3: Demographics of Headache pie Chart

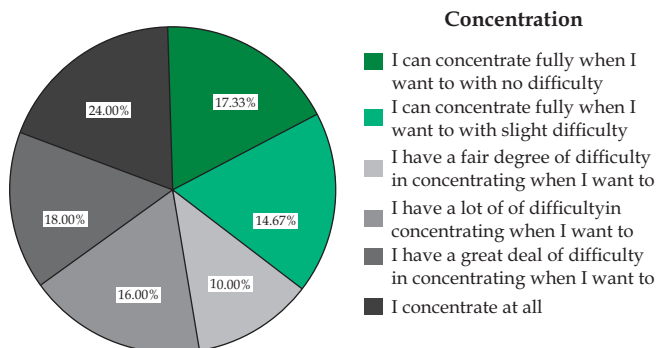


Figure 4: Demographics of Consideration Pie Chart

Discussion:

A trigger point is an irritable point that occurs in a muscle. There are various musculoskeletal problems associated with trigger points. Shoulder pain and neck pain are the most common though. MTrPs are too linked with myofascial syndrome. Myofascial pain syndrome affects different regions. It affects the sensory, motor and autonomic systems of the body. Different countries have different analysis and and prevalence regarding the presence of

trigger points. Here in this study we basically checked the amount of trigger points in the neck region associating it with different risk factors and other activities. All the students of physical therapy department were taken under consideration and they were then assessed for neck pain initially through a standard questionnaire named as Neck Disability Index and also along with itself interviewing technique was also included. Students were interviewed during their assessment. Then the major part was to see how worse pain neck affected the individuals. Myofascial TrPs were then assessed through palpation. Active and Latent TrPs were differentiated in those students who had moderate and severe neck pain. Mostly, Trigger points are intermingled with the term Tender points. The pain of the trigger points is referred to other regions of the body whereas the pain of the tender points is localized only to one side/region of the body. The reliability of physical examination for diagnosing MTrP has been questioned. Therefore Simon and Treval gave the concept of active and latent TrPs and stated that these TrPs can easily be assessed using three different palpation techniques. These palpation techniques were found to be successful in assessing TrPs in individuals. The sample size taken was about of 150 students of Physical Therapy Department of University of Lahore. Neck Disability Index Questionnaires were distributed among the students to check the intensity of neck pain while doing various activities of daily living. NPRS (Numeric Pain Rating Scale) was also used to assess the pain quality and intensity. Self-interview was also taken from the students which made it easier to collect the data. Manual Palpation techniques were used to assess the trigger points. Flat, Snapping (also known as pincer) and deep palpation techniques were used. These three techniques helped to find out the trigger points. Further on, analysis was done on the given and obtained data and results were calculated as mentioned above in the results section. Prevalence of Myofascial TrPs was calculated then which came

to be about amongst the students of Physical Therapy Department of University of Lahore.

Conclusion:

NDI was used to assess the referred pathways in neck pain. Palpation was used to get better results for trigger point's assessment.

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