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PREVALENCE OF CENTRAL SENSITIZATION IN MSK DISORDERS IN COMPUTER USERS

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ABSTRACT

Background: Central sensitization refers to an enhancement of the functioning of neurons and circuits in nociceptive channels throughout the neuraxis as an result of increase membrane excitability, synaptic performance, are reduced inhibition. Central sensitization syndrome CSS are a group of disorders in which the CNS misfires and amplifies sensory input, leading to discomfort, headache, tiredness, and difficulty in sleeping, CSS include fibromyalgia, chronic fatigue syndrome and several chronic pain syndromes.

Objective(s): The objective of my study is to evaluate prevalence of central sensitization in MSK in computer users.

Methodology: cross sectional study was carried out involving computer users from Kharian and lalamusa. The study duration was 4 months. 200 participants were added. Computer users aged 18-65 years were included. CS was calculated by CSI score. In this study participants having CSI score 0-40 are considered normal.

Results: To find the prevalence of central sensitization in MSK disorders in computer users we collected data from lalamusa and Kharian. Based on results, it is concluded that 32% of patients have symptoms of CS.

Conclusion(s): Based on results, it is concluded that there is a low prevalence of central sensitization among the computer users with MSK disorders. 200 participants were selected for this research. The age of participants selected varies from 18-65.

***Keywords*:** central sensitization, central sensitization inventory, MSK disorders

INTRODUCTION

Chronic musculoskeletal (MSK) problems are a major worldwide health concern, and most common of them is chronic low back pain**.** Chronic pain is defined as pain that lasts longer than the average recovery of 3 months, or greater than 3-6 months. [(1)] In response to painful input central sensitization is an increased neural response in central pathways of pain, which is caused by neurological inflammation in both the peripheral and central nervous system.[(2)]

Recognizing presence of central sensitization and risk indicators in shoulder disorders is crucial for successful pain management. Building on previous research that connected central sensitization to numerous musculoskeletal illness.[(3)] According to Woolf central sensitization is defined as " amplification of neural signaling within the central nervous system that elicits pain hypersensitivity".

This syndrome, known as pain hypersensitivity, can cause pain in areas other than the arthritic knee, resulting in categorized hyperalgesia. [4]

One of the elements that lead to chronic low back pain is central sensitization (CS). It is described as a sign of dysfunction of the CNS in reaction to normal or sub-threshold afferent signals. Thus, CS might be seen as a mechanism that increases pain and other clinical symptoms in those with persistent low back pain. It is known that lifestyle behaviors and psychological variables can both worsen central sensitization.[5]

The words such as "functional somatic syndromes," "medically unexplained symptoms," and "bodily distress syndrome" have all been utilized in the past to refer to the symptoms of Central Sensitivity Syndromes (CSS). When used for assessing these diseases, the Central Sensitization Inventory (CSI) proved strong clinical validity. Before the establishment of the CSI, CSS evaluation remained complex. [6]

Patients with osteoarthritis (OA) of the knee have developed central sensitization (CS)-similar signs and symptoms. Additionally, 3 months after total knee arthroscopy, patients with knee OA who had higher Clinical Severity Index (CSI) ratings indicated more intense pain than those with lower CSI scores..[7]

Evidence suggests that central sensitization (CS) contributes to the research and management of chronic pain. Pain centralization is a frequently seen phenomenon in many kinds of musculoskeletal diseases that are linked to persistent pain. Disruptions in both the medullary and cerebral facilitative and inhibitory systems may be the cause of the persistent character of pain in these diseases.[8]

Lumbar spinal stenosis is a degenerative disorder that hinders everyday functioning and quality of life, with the most prevalent complain being neuropathic pain. Acknowledging the significance of central sensitization (CS) improves our knowledge of this disease. CS involves unusual nociceptive system function, which is characterized by the amplification of nociceptive pathways due to significant changes in the somatosensory nervous system**.**[9]

One factor that leads to the discomfort experienced by people with chronic low back pain is central sensitization. The term "CS" refers to a hypersensitive state of the CNS in which there is an increased firing frequency and intensity of neurons in response to nociceptive inputs. Reduced vagal nerve activity, weakened nociception-inhibiting mechanisms, and a lowered threshold for nociceptive activation are other characteristics of this state. These variables linked to CS are frequently evaluated using the Central Sensitization Inventory (CSI)**.**[10]

Some symptoms, particularly pain, in musculoskeletal diseases cannot be explained by particular organic sources. As a theory to explain "nonorganic" symptom cases, central sensitization (CS) has drawn more attention as a result. The hallmark of CS, a neurophysiological condition, is an aberrant increase in pain caused by an increase in neural impulses in the central nervous system. It offers an explanation for why people with musculoskeletal illnesses experience pain, incapacity, and other symptoms even when there isn't evident tissue damage or nociceptive input.[11]

Central sensitization (CS) symptoms are frequently seen in several kinds of chronic musculoskeletal pain illnesses, indicating that CS may be present in a variety of persistent pain diseases. It is significant that individuals who are experiencing acute pain may also have increased (CSI) scores, which are symptomatic of symptoms connected to CS. This implies that interactions with other variables may have an impact on CS-related symptoms in addition to the length of discomfort.[12]

The emergence of chronic pain is significantly influenced by central sensitization. Studies show that it contributes to the pain that is felt in rheumatic disorders. Hyperesthesia and allodynia are the characteristics of central sensitization, which may appear with a great range of mental, psychological and physical symptoms. Furthermore, research has indicated a link between central sensitization and sleeplessness. [13]

From a neuro biological standpoint, the establishment of central pain sensitization, or hyperactivity of the CNS, was identified as a crucial process that leads to the onset of chronic discomfort in the setting of life-threatening trauma. 202 patients with chronic pain participated in cross sectional study, and both severe injuries and post traumatic stress disorder symptoms were strongly related to clinical manifestations of CS, such as pain severity, and polysomatic complaints detected by the CSI. [14]

The sense of pain caused by non-noxious stimuli on normal skin, known as allodynia, and also the investigation of temporal summation and hyperalgesia, have all been investigated in various primary headaches. These behaviors are regarded as clinical indications of central sensitization. [15] Central sensitization (CS) is described as the "heightened responsiveness of nociceptive neurons in the central nervous system to standard or subthreshold afferent inputs." [16]

Methodology:

A cross sectional study was carried out involving computer users from Kharian and lalamusa. The study duration was 4 months. 200 participants were added. Participants who fulfilled the basic inclusion and exclusion criteria were selected. These were divided into male and female both randomly. This Data collection was carried out in the district of Gujrat. A questionnaire was distributed among the selected population to find the frequency of central sensitization in MSK disorders in computer users. Data were collected from people who work in banks and freelancing offices and online workers.

A central sensitization inventory questionnaire was given to the selected population. It was used to measure the health status and ability to perform activities. Central sensitization symptoms were assessed by using CSI. The score greater than 40 was used for clinical prevalence. The normal score on CSI would be 0-29, mild score was 30-39, moderate score was 40-49 severe was from 50-59, and extreme from 60-100. Through these scores, we know which patient needed treatment. Patient with surgical intervention in the past 3 months was excluded. A patient who is diagnosed with neurological disorders, brain and spinal cord injury, cancer, and the pediatric population was excluded. Patients having disorders of CNS, the main cause of neuropathic pain, any form of infection were eliminated. Data collected from participants remained confidential throughout the process.

RESULTS

Table no.1 shows that we take total 200 participants for this research in which 138 are males (69%) and 62 females (31%).

Table 1: This table shows the distribution of computer users among male and female

Gender

		Frequency	Percent
Valid	Male	138	69.0
	Female	62	31.0
	Total	200	100.0

Table 2 indicates the frequency of feeling unrefreshed differed across subjects. Specifically, 11.0% reported never feeling unrefreshed, whereas 18.0% felt unrefreshed rarely. A bigger proportion (44.5%) experienced feeling on occasion. Furthermore, 15.5% reported feeling unrefreshed frequently, while 11.0% claimed feeling unrefreshed always.

Table 2: Percentage of unrefreshed in central sensitization in msk disorder in computer users

Unrefreshed

		Frequency	Percent
Valid	Never	22	11.0
	Rarely	36	18.0
	Sometime	89	44.5
	Often	31	15.5
	Always	22	11.0
	Total	200	100.0

Table 3 indicates that there were 200 individuals in all, with 119 reporting never having "Jaw" and 59.5% experiencing it. A lower proportion reported experiencing it rarely (17.5%) or sometimes (16.0%). Fewer people reported having it often (4.5%) or always (2.5%).

Table 3: Percentage of Muscle tension in central sensitization in msk disorder in computer users

		Frequency	Percent
Valid	Never	119	59.5
	Rarely	35	17.5
	Sometime	32	16.0
	Often	9	4.5
	Always	5	2.5
	Total	200	100.0

Table 4: Percentage of Activities in central sensitization in msk disorder in computer users

Activities

	Frequency	Percent
Never	65	32.5
Rarely	52	26.0
Sometime	60	30.0
Often	14	7.0
Always	9	4.5
Total	200	100.0

Table 4 shows the percentage of activities done by people with central sensitization in MSK diseases who use computers. The majority of individuals reported engaging in activities "Never" (32.5%), "Rarely" (26.0%), "Sometimes" (30.0%), "Often" (7.0%), and "Always" (4.5%).

Figure1: Graphical representation of central sensitization in msk disorder in computer users

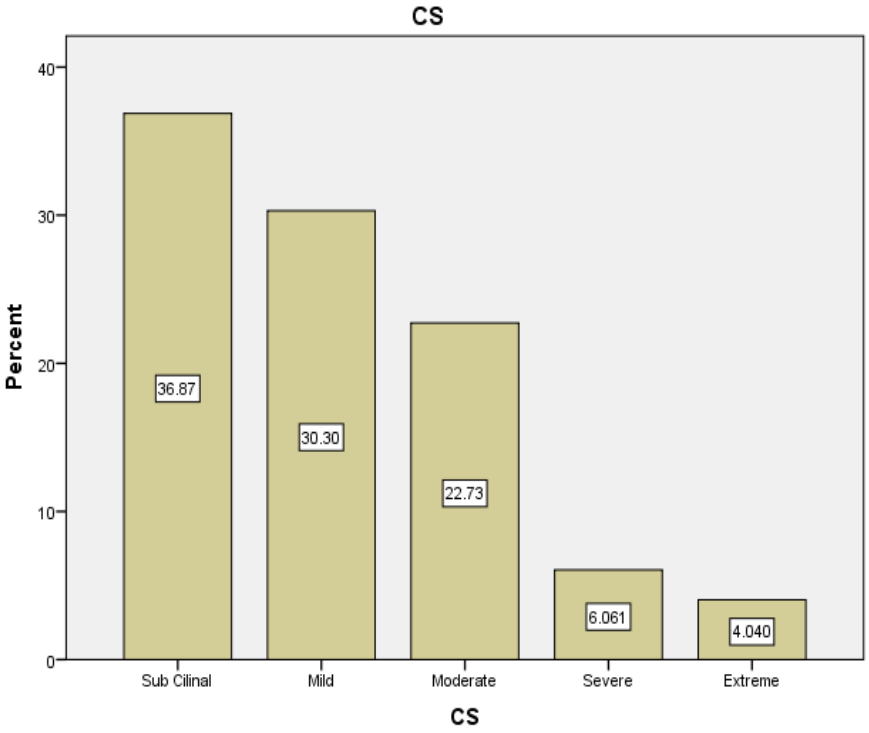

Figure 5.23 shows how this data appears to indicate the severity levels of a condition labeled "CS" in a sample population. Subclinical: 73 individuals (36.9%), Mild: 60 participants (30.3%), Moderate: 45 participants (22.7%), Severe: 12 participants (6.1%), and Extreme: 8 participants (4.0%). These percentages show the distribution of responses to the severity of "CS" across 198 participants.

Figure2: Graphical representation of Pelvic Area in central sensitization in msk disorder in computer users

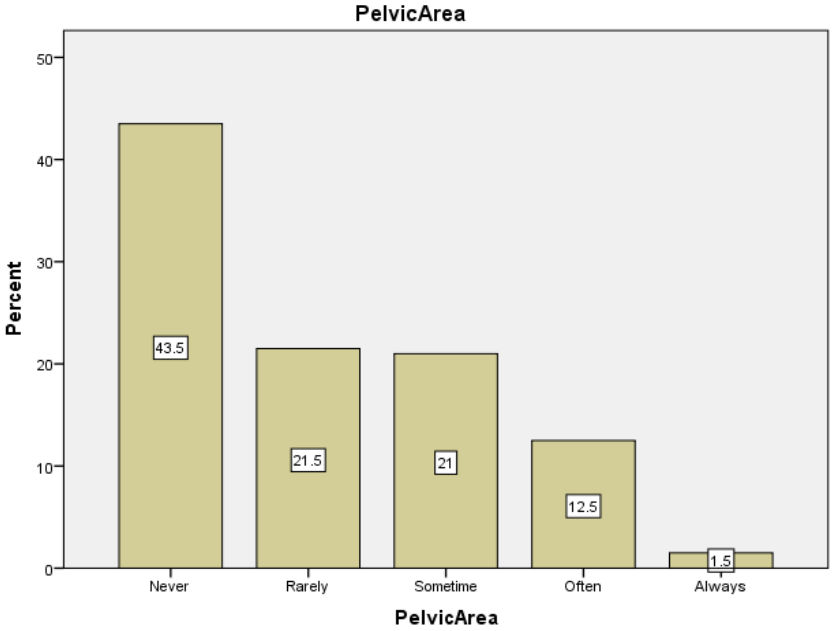

Figure 2 displays the frequency of pelvic region concerns among a sample of 200 participants. Never: 87 (43.5%), Rarely: 43 (21.5%), Sometimes: 42 (21.0%), Often: 25 (12.5%), Always: 3 (1.5%).

DISCUSSION

This study was done over four months and involved 200 participants aged 18 to 65. The participants were selected from computer users with MSK diseases in Lalamusa and Kharian over the last five years. Data was collected by visiting multiple banks and freelancing offices. This study was used to figure out the prevalence of CS in MSK illnesses among computer users. A cross sectional study was carried out to find the prevalence of CS in MSK disorders in computer users.In this study 18-65 years were selected in which total participants were 200. Out of 200 138 were males (69%) and females were 62 (31%). The Clinical Severity (CS) classification reveals a spectrum of symptom severity among participants. The majority fall within the categories of Sub-Clinical (36.5%), Mild (30.0%), and Moderate (22.5%), with smaller proportions experiencing Severe (6.0%) and Extreme (4.0%) symptoms. Patients who matched the inclusion and exclusion criteria were chosen. Participants were computer users with reported MSK problems and age ranging from 18 to 65 years, both male and female. The study excluded participants. Patients who matched the inclusion and exclusion criteria were chosen. Participants were computer users with reported MSK problems, ranging in ages from 18 to 65 years, both male and female. The study eliminates participants who have had upper or lower limb surgery within the last three months, as well as those who have been diagnosed or reported cases of neurological diseases, spinal cord injury within the last three months, cancer, neuropathic pain, or scoliosis. The sample includes specific symptoms for diseases such as fibromyalgia, anxiety attacks, depression, stress, irritable bowel syndrome, migraine.

CONCLUSION

Based on results, it is concluded that there is a low prevalence of central sensitization among the computer users with MSK disorders. 200 participants were selected for this research. The age of participants selected varies from 18-65.

LIMITATION(S)

- Central sensitization can be difficult to identify accurately since its symptoms may be confused with other mental health disorders among computer users.

- Depending exclusively on self-reported data can lead to biases, as the participant may misunderstand the symptoms.
- Some participants may not understand the question due to a lack of information or a language barrier.

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