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CORRELATION BETWEEN THE PRESENCE OF SEVERITY OF NECK PAIN, ITS IMPACT ON OVERALL QUALITY OF LIFE, AND THE LEVEL OF NECK PAIN-RELATED DISABILITY EXPERIENCE BY STUDENTS OF INFORMATION TECHNOLOGY PROGRAM

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ABSTRACT

INTRODUCTION

Neck pain (NP) has serious implications for health and quality of life, and it is a well-known cause of impairment in the working population. Neck pain at work is linked to the duration of computer use, frequency of breaks, technique of keyboard operation, position of computer monitors, and type and use of input devices. This study seeks to explore the correlation between neck pain, associated disability, and overall quality of life in Information Technology (IT) students. By analyzing these factors, the research aims to better understand the impact of nonspecific-neck pain on the daily functioning and well-being of this specific group.

DESIGN -A Cross sectional study.

METHOD

Seventy IT students experiencing neck pain took part in this study. They were asked to indicate the item on each of three clinical measures that most accurately reflected their neck condition. The study's outcome measures included the Neck Disability Index (NDI), Quality of Life (QOL), and the Visual Analog Scale (VAS) for neck disability.

RESULT

NDI (Neck disability Index): Mean = 16.87, SD = 5.93, QOL (Quality of Life): Mean = 57.56, SD = 9.80, VAS (Visual Analog Scale for Pain): Mean = 5.01, SD = 7.34

Result of this study shows that there is moderate positive correlation between VAS and NDI, moderate negative between QOL and NDI, weak positive correlation between QOL and VAS.

CONCLUSION:

This analysis indicates significant relationships between neck pain severity, neck disability, and quality of life in IT students. More severe neck pain is linked to increased disability and lower quality of life. However, other factors may also play a role in shaping these relationships, and further research could explore the influence of additional variables such as ergonomics, mental health, and physical activity.

KEY WORDS: Neck pain, IT students, Vas, QOL, NDI

ABBREVIATIONS: IT-Information technology, QOL-Quality of life

NDI-Neck disability index VAS-Visual Analogue Scale. NP-Neck pain Trp-Trigger point.

INTRODUCTION:

Neck pain is a common condition, largely due to the neck's role within the vertebral column. Its position significantly impacts spinal alignment, as the neck provides both stability and mobility for upper extremity functions. Furthermore, the neck acts as a conduit for force transmission and absorption between the upper and lower parts of the body [1,2]Neck pain (NP) has substantial implications for health and quality of life[2] and is a well-known source of impairment in the working population.[2] The one-year prevalence of NP in the general population is reported to be between 30% and 50%.[3]Every year, an episode of NP affects 15% to 20% of the general population, 15% to 60% of the workforce, and 10% to 14% of individuals involved in traffic accidents. [4,5] It is anticipated that 70% of the population will suffer NP throughout their lives, with annual incidence ranges between 15% and 50% of the population.[5] Currently, NP has been connected with myofascial pain syndrome6,7, with a 100% prevalence of myofascial pain syndrome in the NP population.[6] Myofascial pain syndrome can be described as the sensory, motor, and autonomic symptoms caused by trigger points (TrPs).[7]]A TrP is clinically defined as a hyperirritable spot in skeletal muscle that is associated with a hypersensitive palpable nodule in a taut band.

The long – term, lower intensity stresses and strains and improper postures are believed to be the most important causative factors for neck pain.[8] Duration of computer use, frequency of breaks, method of keyboard operation, and position of computer monitors, type and use of input devices are also associated with neck pain at work.[9]Reaching for mouse, too low monitor and leaning forward to operate the computer are some of the faults in workstations that can lead to development of neck pain. Four to five hours of daily computer use is a noted risk factor for neck pain in adolescents. [10] Computer users with neck pain had reduced activity of the cervical extensor muscles and higher activity in the upper trapezius, compared to workers without neck pain [11]

The musculoskeletal changes that can be seen in computer users are forward head posture, hunched back and rounded shoulders. Keeping the neck in proper alignment is very important in preventing neck pain. Taking mini-breaks or micro breaks of 30 seconds once every 20 to 40 minutes is an effective means to reduce neck pain at work and these short breaks have no adverse effect on worker productivity.[12] Computer workstations should be arranged to maximize correct posture and reduce neck flexion with the use of document stands and screen height adjustments, appropriate chairs and supports.[13] Over the past few years, research has indicated a growing prevalence of neck and lower back pain among adolescents[14,15]

The development of neck pain is often associated with various factors such as depression, physical activity levels, and lifestyle habits. Although previous studies have provided significant insights into the causes and effects of neck and lower back pain, there has been an increasing reliance on patient-reported outcome measures (PROMs) and health-related quality of life (HRQoL) surveys to assess the effectiveness of treatments in rehabilitation settings [16] These measures, including the Neck Disability Index (NDI) and the Visual Analogue Scale (VAS), are becoming the standard for evaluating the outcomes of interventions. This study aims to explore the relationship between neck pain, quality of life, and the NDI and VAS scores, in order to better understand how neck pain affects individuals daily lives and treatment outcomes.

AIMS AND OBJECTIVE

The aim of study is to evaluate the correlation of Neck disability index, neck pain and QOL in IT Students.

OBJECTIVES

- To find correlation between neck disability index and neck pain in IT students.
- To find correlation between neck disability index and QOL in IT students.
- To find correlation between QOL and neck pain.

MATERIAL AND METHOD

The ethical clearance was achieved from the institutional ethical committee. An correlation study was performed among total 70 subjects. Prior to the commencement of the procedure, informed consent was taken from the subjects. The 70 participants were selected for the study. The purpose of the study was explained. The subjects were screened based on inclusion and exclusion criteria prior to the enrollment into the study. Both boys and girls with age group of 18-30 years Subacute or Chronic Neck Pain and Reduced Neck Flexion ROM were included in the study. Subjects with any neurological conditions, congenital disorders, traumatic injury, cervical surgery, cervical radiculopathy, systemic diseases, fibromyalgia any recent fractures or impaired upper limb and mentally retarded were excluded from the study. The demographic data such as age, gender, address, were collected through data collection sheet. The correlation was analyzed statistically. Before entering into the study each participant and their parent was given complete information about the study's protocols and supplied written informed consent.

PROCEDURE:

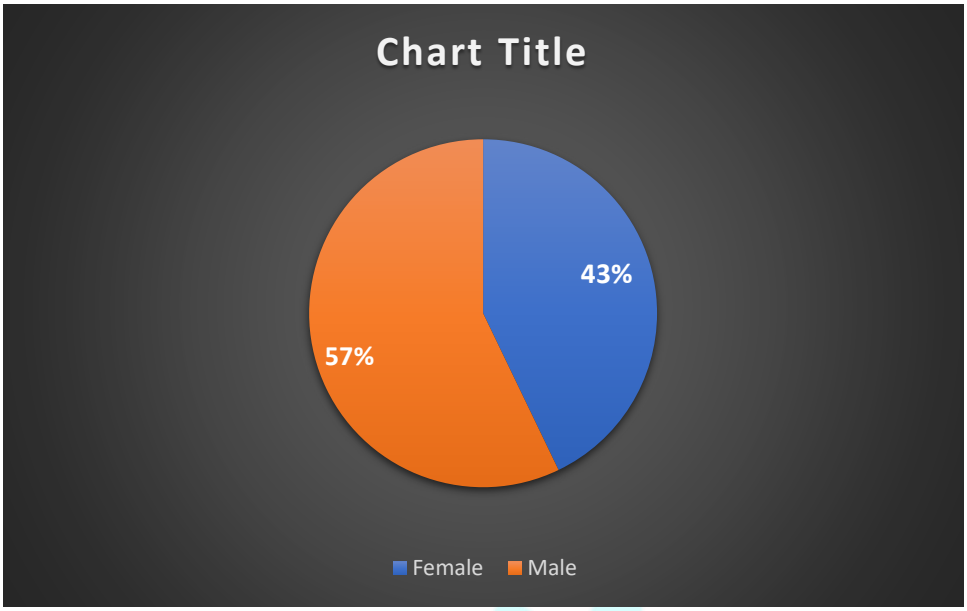
70 students with non- specific neck pain participated in this study to investigate the correlation between neck and Neck disability and QOL Prior to participation, informed consent was obtained from each student, explaining the study purpose, procedures, potential risks, and their right to withdraw at any time without penalty. All participants were assured of confidentiality, and their data were anonymized for the purpose of analysis. After this subjects were asses with NDI, VAS QOL Questionnaires were formulated and organized with the: Google Form

STATSTICAL ANALYSIS: Descriptive analysis, SPSS interpreted by using statistical software IBM SPSS-20. The descriptive statistics including means and standard deviations were obtained. For the nonparametric correlation between variables spearman's test was applied. P- value less than 0.05 were considered to be significant

RESULT

GENDER DISTRIBUTION	
Female	**Male**
30	**40**

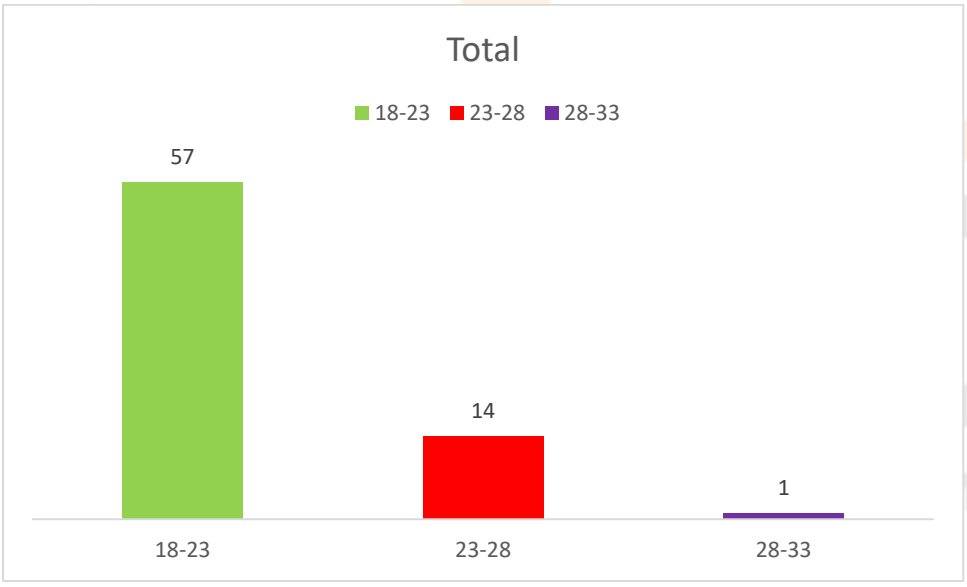
TABLE 1: GENDER DISTRIBUTION



GRAPH 1: GENDER DISTRIBUTION

Age distribution	Total
18-23	57
23-28	14
28-33	1

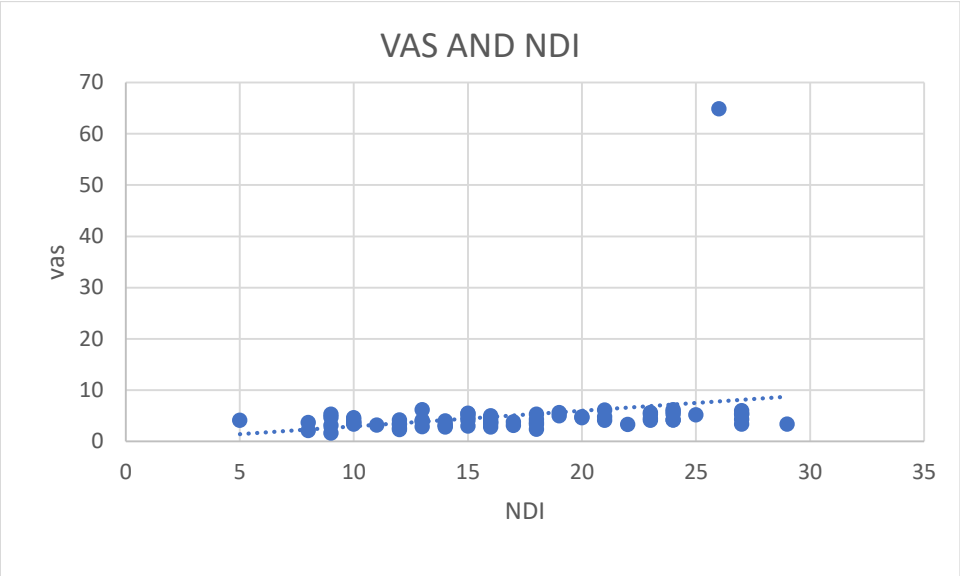
TABLE 2: AGE DISTRIBUTION



GRAPH 2: AGE DISTRIBUTION

	mean	SD	r-value	p-value
NDI	**16.87**	**5.9**	**0.452**	**0.000**
VAS	**5.01**	**7.33**		

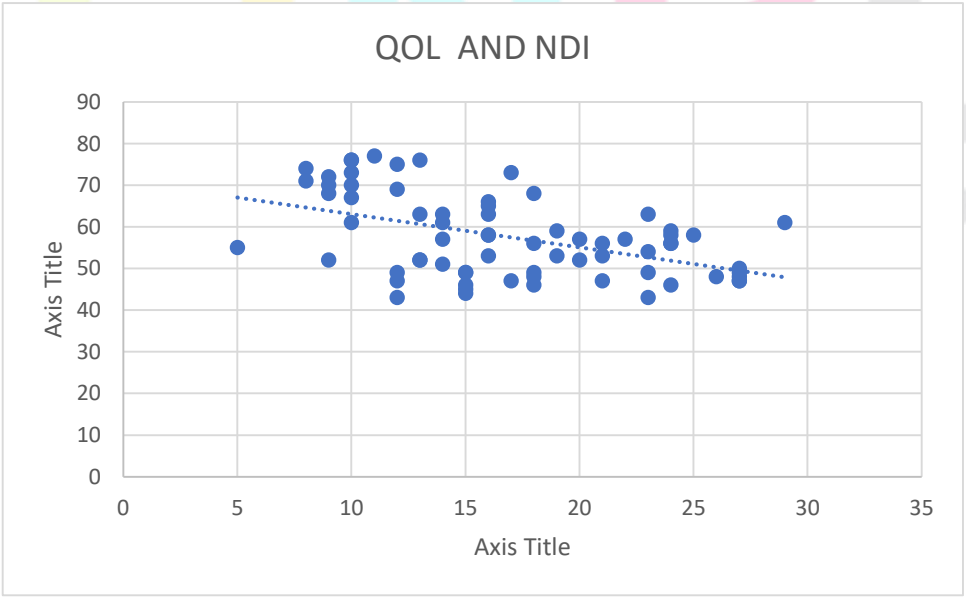
TABLE 3: CORRELATION OF NDI AND VAS



GRAPH 3: CORRELATION OF NDI AND VAS

	Mean	SD	r-value	P- value
QOL	**57.55**	**9.79**	**0.449**	**0.000**
NDI	**16.8**	**5.9**		

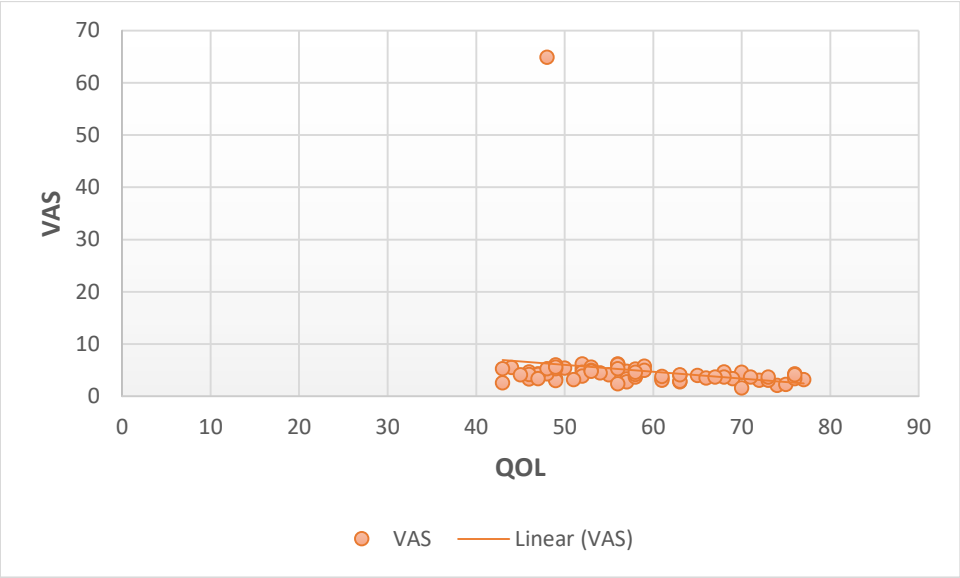
TABLE 4: CORRELATION OF NDI AND QOL



GRAPH 3: CORRELATION OF NDI AND QOL

	Mean	SD	r-value	p-value
QOL	75.55	9.79	0.386	0.001
VAS	5.01	7.33		

TABLE 6: CORRELATION OF VAS AND QOL



GRAPH 4: CORRELATION OF VAS AND QOL

Discussion

Neck pain (NP) is a common and debilitating condition that significantly impacts the daily functioning and quality of life of individuals, particularly in populations like Information Technology (IT) students, who often engage in prolonged computer use. The results of this study underline the negative consequences of neck pain in IT students, demonstrating significant correlations between neck pain severity (VAS), neck disability (NDI), and overall quality of life (QOL). These findings suggest that IT students experiencing chronic neck pain may face considerable challenges in their academic and personal lives, which can ultimately affect their productivity and well-being.

The gender distribution shows higher number of males (40) compared to females (30), indicating a male-dominated group. With a male-to-female ratio of 4:3, this means there are four males for every three females in the sample. This may reflect the specific context or population from which the data was collected, where males are more prevalent, or it could suggest a trend in a particular demographic or industry. The age distribution indicates that any trends or patterns in behaviour might be heavily influenced by younger individuals, particularly in the 18-23 age group.

Neck Pain and Disability the average NDI score in this study (16.87, SD = 5.93) indicates moderate disability due to neck pain. This finding is consistent with previous research, which has shown that neck pain can lead to significant functional limitations. A study by Andersson et al. (2018) [17] found that neck pain frequently reduces the ability to perform tasks such as reading, writing, and prolonged sitting, all of which are common activities for IT students. The impairment in physical function associated with neck pain can be attributed to both the severity of the condition and the impact of ergonomic factors, such as poor posture during extended computer use (Kumar, 2013) [18] In line with these findings, this study's results indicate that moderate disability in IT students may be directly related to the time spent working at computer stations, which may not always be ergonomically optimized.

Impact on Quality of Life (QOL)The mean QOL score of 57.56 (SD = 9.80) reported in this study reflects a notable reduction in quality of life, which is consistent with existing literature. Chronic pain, including neck pain, is known to affect multiple aspects of life, including physical, emotional, and social well-being (Blyth et al., 2015) [19]. Previous studies have also demonstrated that musculoskeletal disorders, particularly neck pain, have a significant negative impact on quality of life, especially when pain is chronic or severe (Schneider et al., 2019) [22]. This study's findings further suggest that the daily challenges of managing neck pain can undermine overall life satisfaction and well-being in IT students. Moreover, students' quality of life may be affected by the physical discomfort of neck pain, but also by associated factors such as fatigue, mental distress, and a reduced ability to engage in social or academic activities.

Correlation Between Pain and Disability the Visual Analog Scale (VAS) for pain in this study, with a mean of 5.01 (SD = 7.34), reflects a moderate to severe pain experience among the participants. This aligns with previous findings suggesting that higher pain levels are directly correlated with greater disability. A study by Lindell et al. (2019) observed that individuals with more intense neck pain tended to experience higher levels of disability, as pain directly hinders mobility and engagement in daily activities. This relationship between pain intensity and disability highlights the importance of addressing the underlying causes of neck pain and implementing effective management strategies. IT students may be especially vulnerable to these issues given the physical demands of their work environment, which typically involves long periods of sitting and working at a computer, potentially contributing to the severity of neck pain.

Factors Influencing Neck Pain and Disability While the study provides valuable insights into the relationship between neck pain, disability, and quality of life in IT students, it is essential to consider other contributing factors that may influence these outcomes. Ergonomics play a significant role in neck pain development. Poor posture, inadequate workstation setup, and extended screen time are all known risk factors for developing musculoskeletal disorders, including neck pain (Harrison et al., 2020)[20]. A study by Hoozemans et al. (2019) found that poor ergonomic practices in office and academic environments were directly associated with increased musculoskeletal discomfort, particularly in the neck and upper back regions. In addition to ergonomics, lifestyle factors such as physical activity and mental health can contribute to the severity of neck pain and disability. A lack of physical activity is a well-known risk factor for the development of musculoskeletal pain, including neck pain (Dario et al., 2020). IT students, who tend to have sedentary lifestyles due to their academic workload, may experience greater pain and disability. Furthermore, mental health conditions such as stress and anxiety have been shown to exacerbate the perception of pain and increase the severity of musculoskeletal disorders (Mogil et al., 2020).[21]These findings suggest that addressing mental health and encouraging regular physical activity could be crucial components of managing neck pain in IT students.

Implications for Interventions the findings of this study underscore the need for targeted interventions to reduce the burden of neck pain among IT students. Interventions should include improving ergonomic practices, such as promoting the use of adjustable chairs, appropriate desk heights, and regular breaks from screen time (Aaras et al., 2006).[22] Additionally, incorporating strategies for physical activity, such as stretching exercises and promoting movement throughout the day, could help alleviate neck pain. Mental health support and stress management techniques could also be beneficial in reducing the perception of pain and improving overall well-being. Educational programs aimed at improving students' posture and providing ergonomic advice could help prevent the development of neck pain and reduce its impact on academic performance and quality of life.

Conclusion

This study highlights the significant impact of neck pain on disability and quality of life in IT students. The results suggest that more severe neck pain is correlated with increased disability and lower quality of life. Given the high prevalence of neck pain in this population, addressing ergonomic factors, mental health, and physical activity levels could help mitigate the negative effects of neck pain and improve overall student well-being. Further research should explore these factors in greater depth to develop more effective interventions and prevent the long-term consequences of neck pain in IT students.

REFERENCE

1.C^ot_e P, Kristman V, Vidmar M, et al. The prevalence and incidence of work absenteeism involving neck pain: a cohort of Ontario lost-time claimants. J Manipulative Physiol Ther. 2009;32(2 suppl):S219-S226.

2.Hogg-Johnson S, van der Velde G, Carroll LJ, et al. The burden and determinants of neck pain in the general population: results of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. Spine (Phila Pa 1976). 2008;33(4 suppl):S39-S51

3.Leininger B, McDonough C, Evans R, et al. Cost-effectiveness of spinal manipulative therapy, supervised exercise, and home exercise for older adults with chronic neck pain. Spine J. 2016;16(11):1292-1304.

4.Gross A, Langevin P, Burnie SJ, et al. Manipulation and mobilisation for neck pain contrasted against an inactive control or another active treatment. Cochrane Database Syst Rev. 2015(9) CD004249. 5. Guzman J, Hurwitz EL, Carroll LJ, et al. A new conceptual model of neck pain: linking 5.onset, course, and care: the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. J Manipulative Physiol Ther. 2009;32(2 suppl):S17-S28.

6.Cerezo-Tellez E, Torres-Lacomba M, Mayoral-Del Moral O, et al. Prevalence of myofascial pain syndrome in chronic non-specific neck pain: a population-based crosssectional descriptive study. Pain Med. 2016;17(12):2369-2377.

7.Simons DG, Travell JG, Simons LS. Myofascial Pain and Dysfunction: The Trigger Point Manual. 2nd ed. Baltimore,MD: Lippincott Williams & Wilkins; 1999

8.Cagnie, B., Danneels, L., Van Tiggelen, D., De Loose, V., Cambier, D. Individual and work related risk factors for neck pain among office workers: a cross sectional study. Eur Spine J; 2007; 16 (5): 679-86.

9. Stupar, M., Shearer, H., Cote, P., et al. Prevalence and factors associated with neck pain in office workers. In: Proceedings of the World Congress on Neck Pain; Los Angeles. Toronto: Canadian Institute for the Relief of Pain and Disability; 2008: 154.

10.Hakala, P.T., Rimpela, A.H., Saarni, L.A., Salminen, J.J. Frequent computer – related activities increase the risk of neck-shoulder and low back pain in adolescents. Eur J Public Health; 2007; 16 (5): 536-541

11.Szeto, G.P., Straker, L.M., O'Sullivan, P.B. a compari-son of symptomatic and asymptomatic office workers performing monotonous keyboard work - 2: Neck and shoulder kinematics. Man Ther; 2005; 10: 281-291.

12. . Menzel, N.N. psychosocial factors in musculoskeletal disorders. Crit Care Nurs Clin North Am; 2007; 19: 145-153.

13. 5. Tsauo, J., Jang, Y., Du, C., Liang, H. Incidence and risk factors of neck discomfort: A 6 – month sedentary-worker cohort study. J Occup Rehabil; 2007; 17: 171-179

14.Hohmann C, Ullrich I, Lauche R, Choi KE, L?dtke R, Rolke R, et al. The benefit of a mechanical needle stimulation pad in patients with chronic neck and lower back pain: two randomized controlled pilot studies. Evid Based Complement Alternat Med 2012;2012:753583.

15.Maigne JY, Cornelis P, Chatellier G. Lower back pain and neck pain: is it possible to identify the painful side by palpation only? Ann Phys Rehabil Med 2012;55:103-11.

16.O'Sullivan SB, Schmitz TJ, Fulk GD. Physical rehabilitation. 6th ed. Philadelphia: F.A. Davis; 2014.

17.Andersson, G. B., et al. (2018). Musculoskeletal disorders and quality of life: Results from a population-based study. *Journal of Pain Research*, 11, 515-522.

18.Kumar, S. (2013). Musculoskeletal disorders in the workplace: Risk factors and prevention strategies. *Occupational Medicine*, 63(3), 183-190.

19.Blyth, F. M., et al. (2015). The impact of chronic pain on quality of life: A population-based study. *Pain*, 156(6), 1056-1064.

20.Harrison, R. A., et al. (2020). The role of ergonomic intervention in the prevention of musculoskeletal disorders. *Workplace Health & Safety*, 68(1), 34-43.

21.Mogil, J. S., et al. (2020). The role of stress and mental health in the perception of pain. *Psychological Science*, 31(2), 209-218.

22.Aaras, A., Horgen, G., & Ro, O. (2006). The relationship between office work, ergonomic interventions, and musculoskeletal complaints in office workers. *Applied Ergonomics*, 37(6), 799-803.