

Correlation between Pain and Kinesiophobia in Desk Job Workers with Non-specific Chronic Neck Pain

Aditi Bajirao Shinde¹, Dr. Aishwarya Kanhere²

¹Intern, Tilak Maharashtra Vidyapeeth College of Physiotherapy, Pune, India

²Associate Professor, Tilak Maharashtra Vidyapeeth College of Physiotherapy, Pune, India

Abstract

Background and purpose: Neck pain is one of the debilitating conditions that can impair the ability to perform regular activities, decrease productivity and adversely affect life quality. As nowadays many companies/ offices etc. require working on computer for prolonged period. They demand working on computer for 6-8 hours/day or more and may be at risk of developing neck pain (due to combination of postural strain, desk setup, monitor setup, seating and stress etc.). Working for long duration may cause chronic neck pain. Kinesiophobia is an extreme irrational and enfeebling fear of movement or physical activity. The fear of movement is associated with a feeling of vulnerability to injury in response to movement. In re-injury in chronic cases due to pain, functional impairments may be associated with severity and cognitive responses to pain. Person having kinesiophobia believe that some movement may cause re-injury and additional pain therefore it can be one of the risk factor for persistent pain. Hence this present study is done to find correlation between pain and kinesiophobia among the desk job workers with non-specific chronic neck pain. **Methodology:** 100 desk job workers between 25-40 years of age from different areas of Pune were included who were working on computer for minimum 6-8 hours/day. Kinesiophobia was examined by TAMPA scale and pain was examined by numerical pain rating scale. **Result:** Statistical analysis using Spearman's correlation test showed that pain had significant moderate positive correlation with kinesiophobia in desk job workers of 25-40 year of age. **Conclusion:** The study concluded that there was moderate positive correlation between pain and kinesiophobia in desk job workers with non-specific chronic neck pain.

Keywords: 1.Non-specific Chronic Neck Pain, 2.Kinesiophobia, 3.Desk job workers.

Introduction:

Neck pain is one of the enfeeble conditions that can vitiate the capability to carry out regular activities, reduce productivity and negatively affect the quality of life ^[1]. Studies showed that in developed countries, near 2/ 3rd of people witness neck pain. At a given point in time, about 14 to 16 of the adult population broadly experience neck pain & the mean continuance frequency are 48.5. Work-related neck pain is a common problem in office job workers, especially among those who work on computers for an extended time. It's common for office job workers to sit on an office chair for extended times without having the chance to walk or make any kind of movement with their hands and/ or legs that would actuate a larger group of muscles. While sitting, office job workers tend to lean forward or couch potato down on the chair. This partial immobilization can beget neck pain as stationary posture increases stress on the back, neck, shoulders, arms, and legs ^[2]. In most cases, the pathophysiological mechanisms underpinning neck pain are unclear. Similar "non-specific" neck problems are high in terms of disability and work loss ^[3]. Also, the most common form of neck pain is non-specific chronic pain, which has a postural or mechanical base and affects about two-thirds of people at some stage in their lives. Numerous factors similar as awkward postures, repetitious work, and aggravation of former pain occurrences are reported to contribute to neck pain. In addition, physical factors, similar to active range of movement (ROM), and psychological factors, suchlike as fear of movement, anxiety, or depression, are also associated with chronic neck pain ^[4]. Chronic pain is defined as an episode of pain that lasts for at least 3 months^[5]. The frequency of neck pain among office job workers is high than in the general population. Widely, a one-time frequency of neck pain among executive workers has been reported between 15 and 34.4 in former studies^[6].

Avoidance is a psychological term, but the term 'fear avoidance' applied to the field of pain first appeared in a composition by Lethem et al. in 1983. Kinesiophobia (Kinesis= movement) began to be understood over last two

decades. This term was introduced by Kori, et al. in 1990; this condition had been described as a situation where “a person has an extreme, illegitimate & enfeebling fear of physical movement & activity responding from a feeling of vulnerability to painful injury or re-injury, is constituted to be a central factor in the process of pain developing from acute to chronic stages. The frequency of kinesiophobia with insistent pain varies between 50 and 70, with men reporting a more commonness than women [7]. The fear-avoidance model of Vlaeyen et al offers a frame for conceptualizing the process of developing chronic musculoskeletal pain. When the activation of neck muscles is altered it leads to neck pain. Persons with neck pain showed increased antagonist conditioning in their superficial neck muscles [8,9]. In chronic cases, functional impairments may be associated with pain inflexibility & cognitive responses to pain. Cases who have kinesiophobia believe that some movement may result in re-injury & further pain thus it's one of the threat factors for insistent pain. When the stimulant, which precedes the noxious or painful experience, begins to prognosticate the pain, avoidance begins. The fear-avoidance model presuppositions that developed a fear of movement is associated with the development of avoidance behaviour, ultimately which further leads to further disability and physical deconditioning(i.e., probably due to inactivity or desuetude)[10].

The Tampa Scale for Kinesiophobia (TSK) was discovered by R. Miller, S. Kopri, and D. Todd, in 1991 and is a questionnaire used to assess the individualized degree of kinesiophobia or fear of movement. The scale is grounded on the model of fear avoidance, fear of work-related conditioning, fear of movement, and fear of re-injury. The TSK has also been linked to the basics of catastrophic thinking[11].

Objectives:

- To assess pain using Numerical Pain Rating Scale (NPRS)
- To assess kinesiophobia using TAMPA Scale of Kinesiophobia (TSK)
- To find correlation between pain and kinesiophobia in desk job workers with non-specific chronic neck pain.

Methodology:

Permission was taken from institutional ethical committee of Tilak Maharashtra Vidyapeeth College of Physiotherapy. A Google form was created which was validated and spread out to different companies/ offices. Prior to start a study, the purpose and aim of the study was explained clearly to participants. All the participants were screened for inclusion and exclusion criteria. The method of study was explained to them and their informed consent was taken on the consent form. All the participants were asked to fill the diagnostic criteria sheet and NPRS scale. The assessment of Kinesiophobia was done by asking the participants to fill TAMPA scale of kinesiophobia (TSK 11). Later on the obtained data was analysed in statistical analysing method.

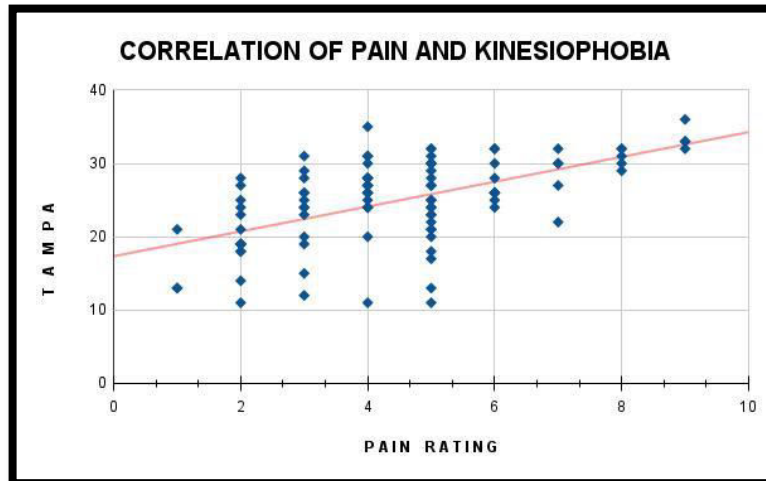
Result:

The given data was statistically analysed and Spearman correlation test was applied and r value was found to be 0.5436.

Table 1: Ratings of pain (NPRS) and kinesiophobia (TAMPA score)

	Variables	No. of participants
PAIN-		
	1-2	17
	2-4	32
	4-6	37
	6-8	10
	8-10	4
TAMPA-		
	0-17	10
	18-24	31
	25-31	47
	32-38	12
	39-44	0

Figure 1: Graph showing correlation between pain (NPRS) and kinesiophobia (TAMPA score)



Discussion:

The correlation of pain and kinesiophobia in desk job workers with non-specific chronic neck pain was assessed by using TAMPA scale of kinesiophobia (TSK) and NPRS for pain rating. A sample size of 100 was included of age group 25- 40 year of age that was desk job workers using computer for minimal 6- 8 hours/ day were considered. TSK- 11 was used to assess kinesiophobia. NPRS was used for pain dimension. Subjects were asked to plot subjective pain intensity of neck pain.

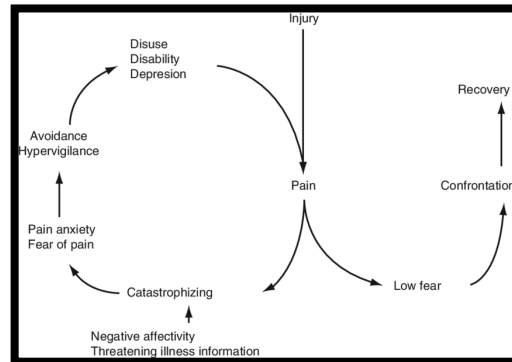
Study was performed to review and compare the characteristics of pain and kinesiophobia in desk job workers with non-specific chronic neck pain. Kinesiophobia was defined by Kori et al. as extreme, illegitimate, and enfeebling fear of physical movement that limits physical activity, and may be result of a painful injury. Cases with kinesiophobia believe that physical movement will invoke further pain. Numerous studies have examined fear of movement- related pain/re-injury in cases with low back and neck pain. Studies that assessed neck and shoulder pain reported a strong relationship between kinesiophobia and musculoskeletal conditions^[12]. Vangronsveld et al. set up a relationship between kinesiophobia (grounded on TSK) and therefore the inflexibility of pain, difficulty in concentrating, and falling asleep was observed. Studies that assessed cases with chronic low back and neck pain reported that pain and disability scores increased due to the fear of movement- related pain increased^[13].

The data collected was statistically analysed using the spearman correlation test which is a non- parametric test and is used to measure an association between variables. Correlation degrees are scaled such that they range from -1 to 1, where 0 indicates there's no direct or monotonic association. The near r is to -1 stronger the monotonic relationship. Interpretation of this test is if score is (0.00-0.19 " very weak "), (0.20-0.39 " weak "), (0.40-0.59 " moderate "), (0.60-0.79 " strong "), (0.80-1.0 " very strong "). In this study the value of r was found to be 0.5436 when analysed statistically using spearman correlation test and showed a moderate positive relationship between pain and kinesiophobia as the line in graph shows constant increase.

The present study done indicates that there's moderate positive correlation between kinesiophobia (TAMPA score) and pain (NPRS score) in desk job workers. Studies that assessed desk job workers with non-specific chronic neck pain reported that pain scores increases because the fear of movement- related pain increased. According to our findings, the inflexibility of pain and kinesiophobia was also moderate in group. Fear is an introductory emotion, which appears as a response to a specific, identifiable and imminent threat. It's constituted by three factors interpretation of the stimulant as threatening, increased sympathetic arousal and defensive geste. Escape behaviours are a defensive and adaptive response to stimulant (e.g., pain) in acute phase can reduce fear situations. Nevertheless, in long term (chronic phase), this avoidance conditioning can come maladaptive. People with chronic musculoskeletal pain are presumed to develop kinesiophobia. They frequently avoid activities which are assumed to provoke a real or implicit injury/re-injury, developing in turn, farther physical inactivity. This fear to carry out certain movements can bring about a negative vicious cycle where people with chronic musculoskeletal pain show greater degrees of pain, disability and emotional excruciation and as a result, poor QOL^[14]. There's fear avoidance model which shows that there's a cycle between pain and avoidance geste which is kinesiophobia. The Fear Avoidance Model describes that when a painful experience is interpreted as threatening, it can induce catastrophizing cognitions that conditioning will result in further pain and re-injury. As this goes on, this can lead to avoidance geste,

which in the long run causes disability, inactivity and depression as well as a case gets trapped in a cycle of increased fear of pain, further pain and disability.(Figure 2) [15]. The study result shows moderate positive association between degrees of kinesiophobia and degrees of pain.

Figure 2: Fear Avoidance Model



Conclusion:

The study concludes that there is moderate significant positive correlation between pain and kinesiophobia in desk job workers with neck pain. This states that pain is directly associated with kinesiophobia.

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