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Correlation between fear of movement, disability and pain in patient with chronic mechanical neck pain- a cross sectional study

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Abstract
Background and objectives: Neck pain is a very common condition in that mechanical neck pain being the commonest. Most episodes of acute neck pain will resolve with treatment, but nearly 50% of individuals will continue to experience some degree of pain or frequent occurrences leading to chronicity. Aim of this study was to find out if there is any relation between fear of movement, disability and pain in patients with chronic mechanical neck pain.
Method: The study consisted of 62 subjects between 18- 50 years of age with chronic mechanical neck pain who were assessed for their neck disability by using the Neck Disability Index, fear of movement using Fear Avoidance Behavior Questionnaire and pain using Numeric Rating Scale.
Result: Results of the study established that, Pain with disability showed a weak yet positive correlation (r= 0.3509; p=0.0052). Pain with FABQ (r=0.2841; p=0.252), with FABQ sub-scales (Physical activity) (r=0.2931; p=0.208) and with (work activity) (r=0.2759; p=0.03) showed weak positive correlation. Disability with FABQ (Total) (r=0.05528; p=<0.0001),with FABQ (Physical activity) (r=0.546;p=0.<0001)and with FABQ (Work Activity)(r=0.4607;p=0.0002) showed moderate correlation in patients with chronic mechanical neck pain.
Conclusion: The present study concludes that there is statistically significant association between fear of movement, disability and pain in patients with chronic mechanical neck pain.

Keywords: neck pain, co-relation, fear of movement, disability

Introduction

Neck pain is a most commonly seen condition in clinical practice. Its prevalence in world ranges from 16.7% to 75.1%. The International Neck Pain Task Force narrated the impact of neck pain in social-related problems for families, work, health systems, and economies [1]. Most episodes of acute neck pain will resolve with treatment, but nearly 50% of individuals will continue to experience some degree of pain or frequent recurrences[2]. Mechanical neck pain has a postural or mechanical basis. It almost affects about two thirds of people at some stage, most commonly seen in middle age [3]. Each form of acute, sub-acute or chronic neck pain, where no abnormal anatomic structure; as cause of pain, can be identified, is non-specific neck pain. Pain is said to be Chronic when it lasts for at least 3 months or more than that.

Neck pain is believed to be multifactorial in origin. Recent study gives the evidence that both physical and psychosocial risk factors can contribute to its development, but cultural factors are also important predictors of chronicity of neck pain [2]. Physical factors consist of decreased mobility and altered neuromuscular function. Psychosocial factors which often contribute to the development and maintenance of chronic pain are anxiety, depression, sense of helplessness and fear [4]. Fear of pain is a central construct in the cognitive behavioral models. This helps in evaluating the role that fear of pain plays in pain related avoidance behavior. Fear of pain is associated with overestimation of pain that in turn leads to restriction of movements which contribute to disability. Avoidance is a pattern of behavior that delays, or puts off, an undesirable situation or experience. In addition, avoidance behavior has long been recognized as a spontaneous and adaptive response to acute injury (Wall). [5] Pain- related fear is part of fear avoidance model which leads to development of unfavorable pain experience and behaviors. [5]

There are people who perceive pain as temporary nuisance and don't develop pain related fear and go into confrontation resulting in early recovery. On the other hand, pain is misinterpreted as a sign of serious injury over which one has little or no control and patient perceives this pain as catastrophe. Catastrophizing is defined as exaggerated negative mental mind set brought to bear during actual or anticipated painful experience. It is a key factor that defines how cognition, belief, coping strategies and functioning are related to the experience of pain. Patient worries that their pain/injury will be exacerbated by certain activities and these should be avoided (fear avoidance belief), resulting into inability to perform certain movements and activities of daily living and work as they anticipate that these movements and activities will increase pain even in the absence of tissue damage. Due to this patient develop pain related fear. Such beliefs can thus subsequently cause disuse atrophy syndrome and may also lead to adaptive withdrawal from social activities and adaptation to a nonworking situation, making it further difficult for the patient to revert back to normal living and work. Individual avoid engaging in physical activities for fear of more pain or further injury which is also known as avoidance hyper vigilance. Such persistent avoidance and hyper vigilance in long term leads to more pain and suffering. Resulting into disuse, depression and disability. [6]

According to WHO (World Health Organization), Disability is ―Any restriction or lack of ability to perform an activity

in the manner or within the range considered normal for the human being. Study by Sions found that when beliefs and fear of movement are present in patients with low back pain, patients may misinterpret pain as being more severe than it is, causing them to be extremely cautious in their actions, thereby causing disability. In essence, common notions of chronic fear and anxiety, chronic pain and avoidance behavior are conceptualized as a self-defeating cycle between cognition and behavior.

Fear avoidance model explains the process by which the emotional and sensory component of pain becomes desynchronized in some patients with chronic pain. It talks about two opposing responses to fear that occur in the context of chronic pain—confrontation and avoidance. Confrontation is conceptualized as an adaptive response that is associated with behaviors that promote recovery and successful rehabilitation. Whereas, avoidance is viewed as a maladaptive response, that leads to increased fear, limitations in activity along with physical and psychological consequences that contribute to disability, and persistence of pain in the absence of identifiable organic pathology. Avoidance learning is behavior associated with persistent pain which arises as a product of operant conditioning. This is an adaptive behavioral strategy for dealing with situations involving pain, but it can become maladaptive when dealing with chronic pain [7]. Continuous adaptation of maladaptive postures like forward head, rounded shoulders in long term leads to pain, muscle spasm, muscle tightness and restricted mobility causing altered motor control giving rise to dysfunction which eventually leads to disability.

Hence, the fear-avoidance belief is an important psychosocial factor in predicting the level of future disability and the likelihood of return to complete work capacity at the earlier phase of rehabilitation[7]. The literature suggests that fear (of pain, of movement/(re) injury) plays a significant role in pain-related avoidance and, in many cases, disability. It is important to realize, however, that there is considerable variability in fear responses to pain. There is abundant literature available on fear avoidance in low back pain but there is paucity of literature about its presentation in chronic neck pain. Therefore, the purpose of this study was to determine the correlation between fear of movement, pain and disability in patient with chronic mechanical neck pain.

Hypothesis

Null Hypothesis

There is no relationship between Fear of movement, Disability and pain in patients with mechanical neck pain.

Alternative Hypothesis

There is a relationship between Fear of movement, Disability and pain in patients with chronic mechanical neck pain

Aim and Objectives

Aim

To find correlation between pain, disability and fear of movement in chronic mechanical neck pain.

Objectives

1. To correlate fear of movement with pain and disability in chronic mechanical neck pain.
2. To assess pain using Numeric pain Rating Scale in patients chronic mechanical neck Pain.
3. To assess fear of movement using Fear-Avoidance Belief Questionnaire in patients with chronic mechanical neck pain.
4. To assess neck disability using Neck Disability Index in patients with chronic mechanical neck pain.

Methodology

- **Study Type**

Correlational study

- **Sample Size**

62 patients with chronic mechanical neck pain

- **Duration of study**

6 months.

- **Inclusion Criteria**
  - Patient with chronic mechanical neck pain (neck pain lasting for > 3months)
  - Age: 18-50yrs of age.

Exclusion criteria

- History of cervical trauma
- Cervical myelopathy/ radiculopathy
- History of cervical spine surgery
- Infection or inflammatory pathologies involving cervical spine
- Systemic conditions like uncontrolled diabetes mellitus and fibromyalgia
- Signs of central nervous system affection
- History of Low back pain

- **Outcome Measures**

1. Neck Disability was measured using Neck Disability Index. [8] The NDI exhibited excellent reliability (ICC = 0.88; [0.63 to 0.95]. The NDI is a well-validated 10-item questionnaire, with each item rated on a 0 to 5-point scale. The sum of the 10 items gives a score between 0-50. According to Vernon's NDI sub-classification, this scale divides the sample into 5 groups of disability: Scores of <4 indicate no disability, 5–14 mild disability, 15–24 moderate disability, 25–34 severe disability, and >35 complete disability.
2. Fear of movement was measured with fear-avoidance behaviour Questionnaire: [11] The questionnaire has a very good content validity and test-retest reliability with an intra- class correlation coefficient of 0.81 and Cronbach's alpha coefficient of 0.90. The Fear-Avoidance Beliefs Questionnaire is a 16-item, self-reporting questionnaire, in which each item is graded on a 6-point scale and was designed to measure patients' beliefs about how physical activities and work affect their pain. The FABQ consists of 2 subscales, which are reflected in the division of the outcome form into 2 separate sections. The first subscale (items 1-5) is the Physical Activity subscale (FABQPA), and the second subscale (items 6-16) is the Work subscale (FABQW).
3. Pain measured with Numeric pain Rating Scale: [14] The NPRS exhibited moderate validity and reliability (ICC = 0.67; [0.27 to 0.84). It is used to measure self-reported pain of patient with chronic neck pain.

- **Procedure**

The purpose and procedure of the study was explained to all subjects in detail in the language they understand. The sequence of the study procedure was as follows.

- Patients with chronic mechanical neck pain between 18-50 years of age were recruited during their routine visit to physiotherapy department
- Individuals were screened for inclusion and exclusion criteria. and were excluded if they fell into any of the above-mentioned exclusion criteria.
- Written informed consent was taken.
- Data was collected in a single study session.
- All the patients were then assessed for the outcome measures.

Results

Data for statistical analysis was entered using Microsoft Excel version 2010. Statistical analysis was performed using Excel 2010 and Graph Pad prism 8.4.2. Of total 62 subjects, 18 were males and 44 were females. For the total study population (n= 62), mean age was 32.58 ± 5.24 years. Normality of data was tested using Kolmogorov Smirnov test.

Data passing normality was calculated using Pearson's correlation test and data not passing normality was calculated using Spearman test.

Out of the 62 individuals that participated in the study, 18 were males and 44 were females. Percentage of males in the study was 29.03% and percentage of females was 70.96%. The classification of neck disability of 62 chronic neck pain patients into mild (n=10), moderate (n=27), sever (n=22) and complete disability (n=7)

There is a weak positive correlation between pain and neck disability (r= 0.3509; p= 0.0052), a weak positive correlation between pain and physical activity (PA) sub-scale of FABQ (r= 0.2931; p= 0.0208, a weak positive correlation between pain and work activity subscale of FABQ. (r=0.2759; p= 0.03), a moderate correlation between neck disability and PA sub-scale of FABQ. (r=0.546; p=<0.0001), a weak positive correlation between pain and FABQ sub-scale physical activity. (r = 0.4607; p= 0.0002), a weak positive correlation between NRS and total FABQ. (r= 0.2841; p= 0.252) and a moderate correlation between neck disability index and FABQ. (r=0.5528; p= <0.0001).

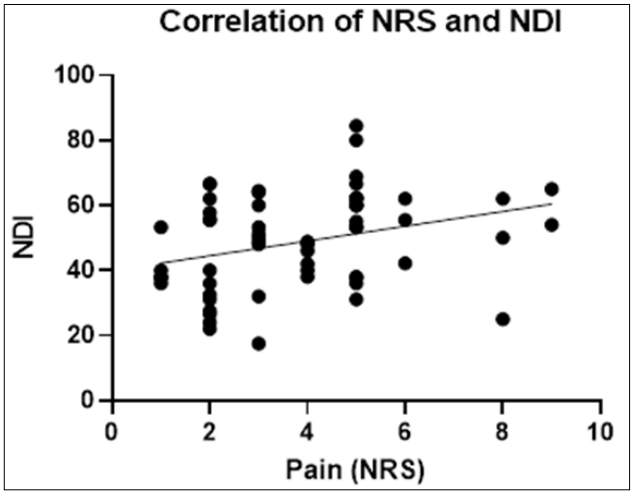
Table 1: Descriptive Statistics of Age, Pain, FABQ and NDI

Variables	Mean	Standard Deviation (SD)	Standard Error of Mean (SEM)	Min-Max
Age (in years)	32.58	9.40	1.19	19-52
Pain (NRS)	3.83	1.96	0.25	1-9
FABQ (score)	30.36	15.67	2	3-71
NDI	48.69	14.52	1.85	17.5-84.44

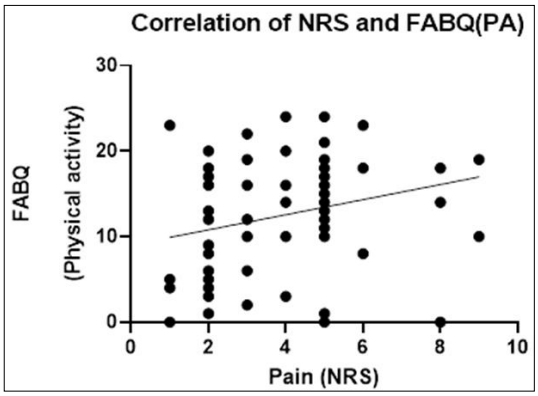
Table 2: Correlation between Outcome measures.

Variables	R value	P value
NRS with NDI	0.3509	0.0052
NRS with FABQ (PA)	0.2931	0.0208
NRS with FABQ (WA)	0.2759	0.03
NRS with FABQ (Total)	0.2841	0.252
NDI with FABQ (PA)	0.546	<0.0001
NDI with FABQ (WA)	0.4607	0.0002
NDI with FABQ (Total)	0.5528	<0.0001

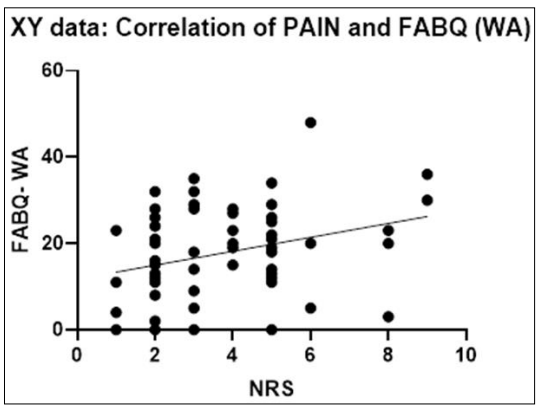
P < 0.05 is considered Significant



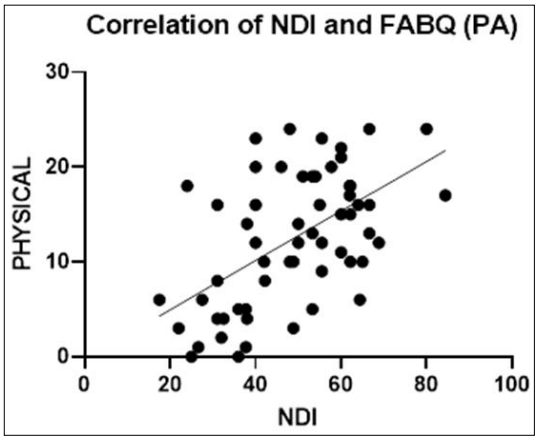
Graph 1: Correlation between NRS and NDI



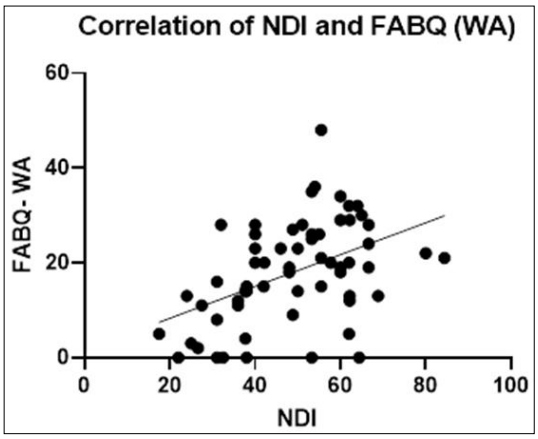
Graph 2: Correlation between NRS and FABQ (PA)



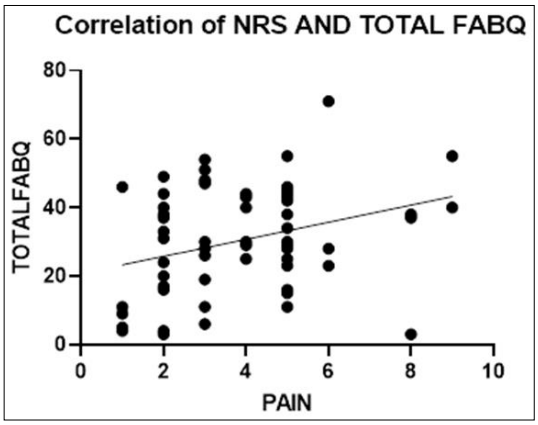
Graph 3: Correlation between NRS and FABQ (WA)



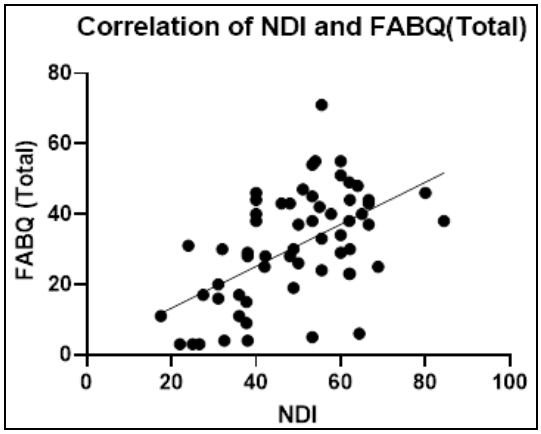
Graph 4: Correlation between NDI and FABQ (PA)



Graph 5: Correlation between NDI and FABQ (WA)



Graph 6: Correlation between NRS and FABQ (Total)



Graph 7: Correlation between NDI and FABQ (Total)

Discussion

The aim of the study was to determine the relationship between the Fear of movement Scale, pain and Neck Disability in chronic mechanical neck pain patients. Results revealed that there is a positive correlation between FABQ, pain and neck disability. This study included 62 patients with chronic mechanical neck pain of which 44 participants were females and 18 were males.

Neck pain is one of the most common musculoskeletal conditions. Approximately one third of all adult experience neck pain during the course of 1 year. Though neck pain is often self- limiting within a few weeks, 40% of the patients contact their general practitioner. Of these, 30% are referred for further diagnosis to a medical specialist and 32% to physiotherapy, manual therapy [15]. Neck pain is influenced by different environmental and personal factors. There are evidence stating that occupation, headaches, emotional problems, low job satisfaction, sedentary work postures, a poor physical work environment (e.g., poor keyboard or mouse position), ethnicity and smoking are few of the factors associated with the onset of neck pain [16]. Prolonged exposure to these factors can affect an individual's physical activity causing musculoskeletal impairment and can also influence coping mechanism with pain which may lead to disability.

In present study, population suffering from chronic mechanical neck pain was included. Mechanical neck pain has a postural or mechanical basis without involvement of any anatomic structure. It is influenced by awkward or static postures, neck flexion, forceful exertion and faulty workplace design [3]. The pain is said to be chronic when it last for at least 3 months or more than that. 11- point numeric rating scale (NRS) was used as an outcome measure for pain, with 0 representing- no pain and 10- unnberable pain. It was further divided for easy scoring and were interpreted as 0=no pain, 1–3 = mild pain, 4–6=moderate pain, 7–10 = severe pain.[17] Mean of pain for 62 patients was 3.83±1.96 (moderate pain), with mean in females (n= 44) being 4.06±1.92 and in males (n=18) it was 3.22±1.90. Present study showed higher incidence of neck pain and intensity of pain in females compare to males. Previous studies show that on comparison men and women have different physiological and behavioral responses to pain; women are more pain sensitive due to which prone to present worse and longer-lasting pain symptoms. [18]

To evaluate the disability in these patients Neck Disability Index (NDI) was used. NDI is a well-validated 10-item questionnaire, with each item rated on a 0 to 5-point scale which gives a score between 0-50. Scale divides the sample into 5 groups of disability: where scores of <4 represent no disability, 5–14 represent mild disability, 15–24 represent moderate disability, 25–34 represent severe disability whereas >35 represent complete disability[3,19]. In present study patients were classified into mild, moderate, severe and complete disability in that there were 10 participants with mild disability, 27 with moderate disability, 23 with severe disability and 2 with complete disability.

This current study showed a significant positive weak correlation between pain and disability. (r=0.3509) where intensity of pain in our population was mild to moderate (NRS=3-4) and presented majorly with a moderate to severe neck disability. A study by Lee *et al*. suggests that pain is associated with a range of psychological, physical, and social factors. The identified factors include age >35 years,

poor self-rated health, limitations to usual activities, and anxiety and/or depression [18]. These factors are also associated with disability. Also pain being subjective, clinical assessment of pain is dependent on the patient's communication of pain by verbal report (Melzack) [20]. There is a tendency that patient might have increased or decreased pain sensitivity with respect to the goal to be achieved. There is a possibility that patients with chronic neck pain who closely monitor their pain intensity might be more competent at pacing their activity in comparison to patients who do not monitor their pain intensity as closely. Such patients are able to complete similar amounts of activity, but without experiencing increases in pain intensity [21]. Study by Thompson *et al*. has reported that pain exerts only a minor influence over levels of disability in chronic pain populations. As neck pain related disability is multifactorial, the strategies which solely aim to reduce pain intensity will not fully restore function in patients with neck pain conditions. [22]

In present study, level of disability and intensity of pain was more in females compare to male patients. It's been prove that females generally have higher tendency of neck pain than males.[16,18] Causative factors being early-life and higher exposure to psychological distress which enhances the risk of chronic pain, including pain conditions which are potentially related to previous experiences of personal violence or abusive relationship, and sometimes health care providers become bias towards female patients unknowingly affecting health care delivery, in as much as women seem to be diagnosed less or are treated less effectively or aggressively than men [18]

Beltran-alacreu *et al*. stated that psychological factors, such as fear of movement, anxiety, or depression, are associated with chronic neck pain. [3] Recent studies have demonstrated that psychosocial variables are far more important than physical examination findings for predicting prolonged pain and disability in patients with neck pain [11, 23] Another study found that, the presence of fear to movement can lead to a more severe perception of the pain, an impairment of the quality of life, and ultimately an increase in disability. [24] Hence, assessment of fear of movement in disability evaluation is essential.

A ―fear-avoidance model‖ which assesses the fear of movement has been used in conditions where the patient perceives pain as harmful stimuli and demonstrates avoidance-hyper vigilance. This triggers a vicious cycle in which the patient is affected both physically and psychologically, leading to fear of movement (kinesiophobia) and avoidance behavior where person believes that specific activities or movements will increase his/her pain. In response to this fear, they avoid performing specific activities or movements. [3, 6] This avoidance increases with fear, which may result in non-use and disability in the long term. Kinesiophobia is defined as an excessive, irrational and debilitating fear to carry out a physical movement, due to a feeling of vulnerability to a painful injury or reinjures.

To assess the kinesiophobia Fear Avoidance Belief Questionnaire (FABQ) was used. It consists of 16 questions. Each question has a six-point Likert scale, with options of completely agree and completely disagree. The total FABQ (FABQ-T) score ranges from 0 to 96, with higher scores being indicative of a high, self-assessed level of fear-avoidance beliefs. It consists of two subscales- physical activity (PA) and work activity (W) The FABQ-PA subscale consists of four statements regarding the fear of physical activity. Scores on this scale range from 0 to 24, with a higher score indicating of high fear-avoidance beliefs related to general physical activity. The FABQ-W subscale consists of seven questions regarding the fear of work activity. Scores on this subscale range from 0 to 42, with higher scores indicative of high fear-avoidance beliefs associated with work.

In present study we found a positive weak correlation between pain and FABQ- total (T) (r=0.2841). This questionnaire has 2 sub-scales such as physical activity and work activity. Correlation of pain with physical activity (PA) showed a positive weak correlation r=0.2931and pain with work activity (WA), also showed a positive weak correlation a similar result with r=0.2759. This suggests that fear of pain and re-injury is more responsible for fear of movement than severity of pain. Cheung *et al*. [11] reported that there was a weak correlation between the kinesiophobia scores and severity of pain in patients with mechanical neck pain. It suggested that as Fear Avoidance Belief Questionnaire was originally designed for patients with low back pain it was not able to capture neck pain related fear avoidance belief adequately. Due to which magnitude of fear and subsequent avoidance responses of patients with neck pain might not be same as patients with low back pain. According to Zacharias Dimitriadis *et al*., anxiety was closely related to pain intensity whereas depression and catastrophizing was associated with neck disability. Thompson *et al*. in idiopathic neck pain patients revealed that, the psychological states of patients with idiopathic chronic neck pain was associated with their disability rather than their pain intensity. These changes of the psychological states of patients with idiopathic chronic neck pain had stronger impact on their disability without significantly altering their pain intensity. This explains the importance of understanding catastrophization of pain for predicting patients' disability, which also explains the fact that disability presented a lower correlation with pain intensity than the correlation it presented with catastrophizing [2]. Persistent errors of pain prediction in either direction was related to chronic pain. Moreover, the nature of the prediction was mediated by fear of pain. That is, under predictions was associated with a low fear of pain and a failure to avoid when avoidance behaviour is warranted, whereas over prediction was related to elevated fear of pain and inappropriate avoidanc [6]. In a systemic review 21 studies showed a significant association between a greater degree of kinesiophobia and greater levels of pain intensity [25]. Vangronsveld *et al*. [18] also found a relationship between pain severity and kinesiophobia in patients with neck pain secondary to whiplash syndrome. Similarly, Thompson *et al*. [21] evaluated neck pain after chronic whiplash syndrome and found a relationship between the severity of pain and kinesiophobia scores.

From previous researches we know that fear of movement has a more significant relation with neck disability than neck pain intensity. For the same reason we assessed the relation between Neck Disability an FABQ. Normally during an episode of acute neck pain patient goes into avoidance behavior (activity or movement that triggers the pain are avoided) it is an adaptive response to acute injury which resolves with tissue healing or rest [6]. When this pain persists for more than 3 months it results into chronic neck

pain where avoidance behavior is viewed as a maladaptive response. Learning of this maladaptive response gives rise to pain related fear resulting into disuse, atrophy and immobility, physical impairment leading to disability [6] According to WHO disability is described as an umbrella term which includes physical impairments, activity limitations and participation restriction

Furthermore, in the present study there was a positive moderate correlation of total FABQ (Total) with neck disability (r=0.5528). FABQ-PA with NDI was (r= 0.546) whereas FABQ- WA with NDI was (r= 0.4607) FABQ score was significantly higher in females (mean=28.61± 16.27) than males (mean=31.62 ± 15.35). Work domain of FABQ was not applicable in 6 patients who include students and unemployed subjects in this study. Remaining 56 participants were either housewives or were doing work from home due to pandemic.

During past year because of pandemic employed people were doing work from home where they were supposed to work for specific hours without a work environment and ergonomically designed work station. As we know, ergonomics is known as the science of studying people at work and then designing tasks, jobs, information, tools, equipment, facilities and the working environment so people can be safe and healthy, effective, productive and comfortable. Application of this ergonomic principle in majority of work places has reduced postural pain or pain due to static position. Due to lockdown people at home were working without an ergonomically designed table, chair to maintain ideal posture. This must have led to attenuation/adaption of faulty posture further, causing pain in general physical activity and because of it sense of disability due to work.

Females who were homemaker were already overworking and in case of working women increase in work demand and household activities caused affection of physical activity.

Maximum numbers of people were doing work from home. People were following dual responsibility of handling both office work and domestic work. This must have led to involvement of both physical activity and work activity related disability. Physical domain of Fear Avoidance Belief Questionnaire involves activities like bending; lifting etc. there may have been increase in tendency to perform these activities due to increase in domestic responsibilities, which must have led to more physical disability than work disability. Social life is one of the major governing factor for affection of work activity as it comes with social responsibility and in some people give rise to social anxiety [6]. Due to pandemic, socialization by meeting physically was prohibited. This should have reduced the work related disability but this representation is not seen.

A recent study carried out during pandemic found a result that working from home caused stress, anxiety, and isolation, which influenced job effectiveness, well-being, and work life balance. Forced social isolation coupled with a marked reduction in physical activity had negative impact on both physical and mental health. 41% worker felt stressed on working from home [26]. Home environment is prone to be faulty in many aspects in comparison to the workplace. In particular, the absence of ergonomically designed office furniture at home affects the adoption of an ideal posture and must have promoted the onset of musculoskeletal (MSK) disorders. Working in a sedentary position for prolonged periods increases the risk of neck pain. There was reduction of productivity due the presence of distractions in the domestic environment and impaired interaction with colleagues [26]. Pandemic in itself has affected general population's mental health [27].

There are previous studies which have also found a correlation between kinesiophobia and disability. A meta-analysis by Emily Zale stated that pain-related fear contributes to greater disability among patients with chronic pain [28]. These findings were consistent with the fear-avoidance model of chronic pain[6].In the same meta-analysis, they found significant correlation with disability when the pain related fear measure was specific to work-related activities (i.e., FABQ Work subscale). Reflecting multidimensional conceptualization of disability, which extends beyond occupational functioning to include social, recreational, and general physical (e.g., sleep, self-care) functioning. It also suggested that fear of general physical activity (vs. work-related activity) is a stronger predictor of global levels of pain- related disability [28]. A systemic review found a total of 30 studies showing a significant association between greater degree of kinesiophobia and greater levels of disability [25].

Several studies suggest that kinesiophobia has been associated with and is able to predict chronic neck pain disability[2]. Worry and overthinking are typically considered as cognitive risk factors for anxiety and depression [5]. Thompson found anxiety, depression and catastrophizing as major psychological factors causing neck disability where anxiety is associated with an increase in the levels of adrenaline. Release of Adrenaline causes stimulation of β2-receptors leading to a pro-inflammatory cascade of events with a consequential increase of pain experience. Furthermore, it is believed that anxiety has an effect on the autonomous nervous system resulting in vasoconstriction of the involved muscles, promoting muscle injury. Conversely, the existence of neck pain by itself may lead the sufferers to higher levels of discomfort and stress. Anxiety was found to be one key psychological factor leading patients with chronic neck pain to increased pain experience and disability. Similarly, depression is also considered a psychological state which increases the pain experience via a reduction of the activity of descending inhibitory pathways and cause muscle injury and disability like anxiety [2].

According to fear avoidance model, individuals with a trait tendency to have fear and catastrophic thoughts in response to pain are more at risk of developing chronic musculoskeletal pain (CMP) after an injury compared with individuals who do not have this tendency [25]. Often 2 behavioral patterns in the fear avoidance model are seen as habitual styles that are stable across time and across situations. From this perspective, it makes sense to label those at risk as avoiders, and those who recover as ―confronters. However, in light of the temporal and contextual dynamics of behaviors, it may be that on some occasion's avoiders become confronters and vice versa [5].

In contrast to all above mentioned findings, when individuals pursue goals, they become more sensitive to information that is relevant for their goals, and tend to become less sensitive to information that is goal irrelevant. Thus, these individuals become less sensitive to pain when pursuing valued goals. It is highly possible that pain-resilient individuals (those who manage to pursue their life goals despite constant pain) have found ways to balance

activity and rest so as to minimize the persistence of physical exertion [5].

This study thus concluded that there is a moderate co-relation between disability and fear avoidance belief which shows that fear of movement or activity can lead to disability in patients with chronic mechanical neck pain A weak co-relation between pain and disability as both are multifactorial in nature and can be influenced by different factors. There was a weak co- relation between pain and fear avoidance belief as pain being a subjective measure perception of it can vary for different people and for the same person with the type of goal to be achieved.

Conclusion

Present study found a significant correlation between fear of movement, disability and pain in patients with chronic mechanical neck pain. Hence, it is imperative to include both these components during assessment of patients with chronic neck pain.

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