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Study of Kinesiophobia in Patients with Shoulder Pain

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ABSTRACT

Background: Kinesiophobia has been established as an important factor among the patients with musculoskeletal pain. Thus the study aims to explore prevalence of kinesiophobia among patient with shoulder pain and also to find out the correlation between age and kinesiophobia and pain and kinesiophobia.
Aims and Objectives: To find out the prevalence of kinesiophobia among the patients having shoulder pain. To find out correlation between kinesiophobia and age.
To find out the correlation between pain and kinesiophobia
Methodology: A study with 50 subjects of age group between 40 to70 patients suffering from acute, subacute and chronic shoulder pain were selected. Pain was measured using NPRS and subjects were assessed using the tampa scale of kinesiophobia in which the scores above 37 were considered to have positive kinesiophobia whereas the score below were considered negative.
Result- Positive kinesiophobia was present in 40 patients out of 50 that is 80%. This study also shows positive correlation between age and kinesiophobia with significant p value and also positive correlation between pain and TSK score.
Conclusion: The study concludes that positive kinesiophobia is strongly associated with majority of the older adult patient with acute, subacute and chronic shoulder pain. Also with increasing age patients developed more severe kinesiophobia. Patient associated with high intensity of pain have higher tampa score.

Keywords: kinesiophobia, shoulder pain, Tampa scale

INTRODUCTION

The shoulder complex composed of the clavicle, scapula and humerus, is an intricately designed combination of three joints that is glenohumeral joint, sternoclavicular joint and acromioclavicular joint that links the upper extremity to the thorax. However, muscle force serve as a primary mechanism for securing the shoulder girdle to the thorax and providing a stable base of support for upper extremity movements. However, the competing mobility and stability demands on the shoulder girdle and the intricate structural and functional design make the shoulder complex highly susceptible to dysfunction and instability.[1]

In primary care, 90% of the reason for visiting a physician is due to pain. A half of the pains arise from musculoskeletal disorders. Shoulder pain is a common musculoskeletal complain in the community, which can arise from diverse causes. Shoulder pain can be caused by

intrinsic disease of the shoulder joints or the pathology in the periarticular structures, or it may originate from the cervical spine, chest or visceral structures. The most common disorders of shoulder include rotator cuff disease, per arthritis, tendinitis and so on.

Causes may include repetitive overhead activity, postural imbalance, degenerative changes and trauma. Pathology is commonly related to the level of activity and age can play a significant role. [2]

Symptoms of shoulder pain may be experienced dull aching to burning, stabbing and sharp shooting, localised to vague presentation with intensity of pain ranging from mild to severe. Psychological factor are considered to be one of the affecting treatments of any musculoskeletal pain. Research shows the pain related fear can be more disabling than pain itself.

Earlier studies have demonstrated that fear of movement and fear of reinjury is better predictors of functional limitation than biomedical parameters. High level of fear avoidance belief relate to increased levels of disability. [3] If pain experience did not differ between older and younger people, it would be possible to generalize the knowledge from younger populations to older adults. However, previous evidence suggests that age-related changes affect the pain experience and that some factors related to pain may operate in a somewhat different manner across age groups.

Kinesiophobia could thus be one reason why older adults with chronic pain restrict their level of physical activity. As previously discussed, a consequence of chronic pain according to the fear-avoidance model can be limited physical activity that may lead to a cycle of more pain restriction, decreased participation, and disability. [3]

Kinesiophobia is the phobia of physical movement and activity resulting from a feeling of vulnerability to painful injury or reinjury. [4] It is more predictive than biomedical status and pain intensity. [4] According to fear avoidance model it has been postulated that in acute stage of pain fear of movement or "kinesiophobia" is adapted which leads to the systemic avoidance of physical activity thus in long term result in physical deconditioning(2)

Miller, Kori and Todd presented Tampa Scale for Kinesiophobia. It is a 17-item scale rated by 4-point Likert scale ranging from "strongly disagree" to "strongly agree." With scores ranging from minimum 17 to maximum 68. [4]

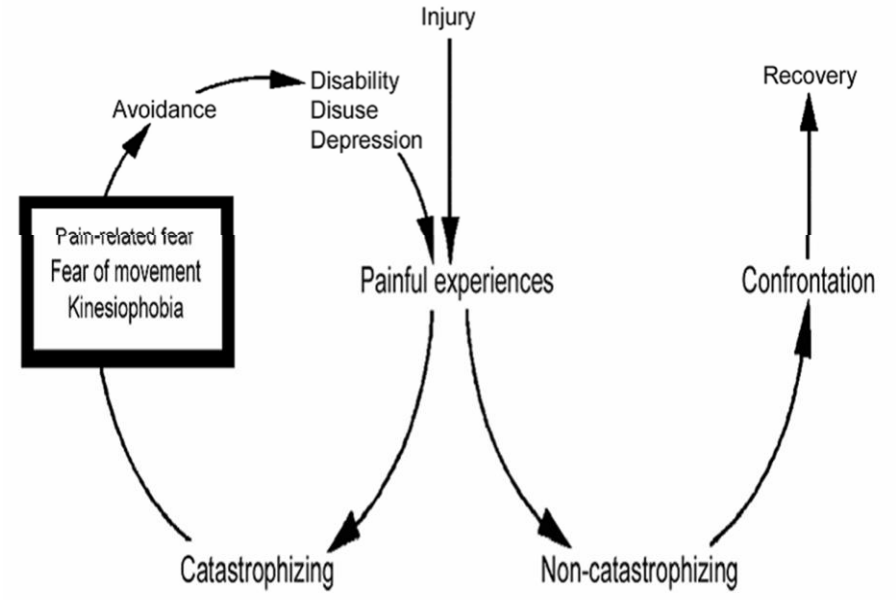


Figure 2. A cognitive-behavioural model of fear of movement/ re(injury) by Vlaeyen et al.(5)

Vlaeyen et al in 1995 described kinesiophobia with cognitive behavioural perspective that persons who catastrophically misinterpret innocuous pain are likely to become fearful of pain that result in at least avoidance behaviour, avoidance of movement particularly physical activity, increased bodily awareness and pain hyper vigilance that might exacerbate the painful experience. [5] Hence this study aims to explore the prevalence of kinesiophobia among the patient with shoulder pain.

METHODOLOGY

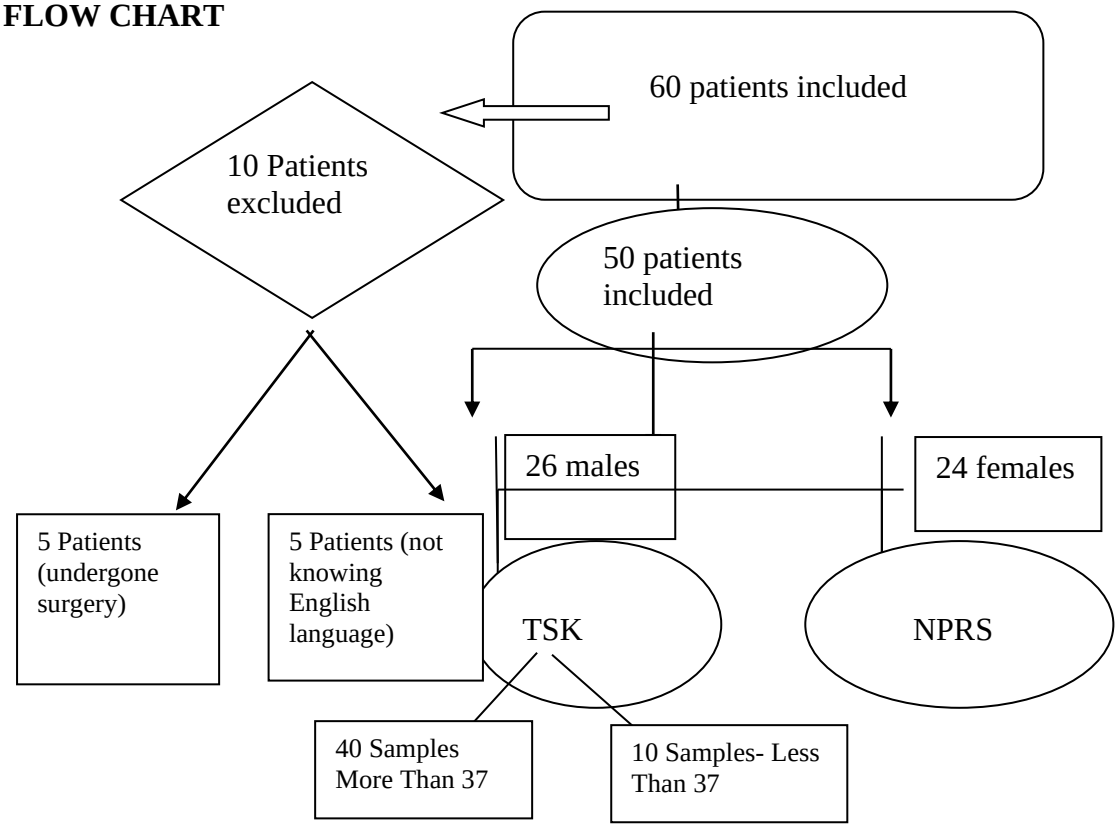
Study design: observational study.
Sampling: convenient sampling
Sample Size: 50

PROCEDURE

This study was carried out between October 2018 to March 2018. Subjects who were diagnosed with musculoskeletal shoulder pain of both sexes aged between 40-70 years were included in the study. Shoulder pain with non-musculoskeletal causes as well as subjects who are recuperating in post-operative process of any nature were carefully excluded. A questionnaire was developed to record basic demographic details of the study participants. The purpose of the study was explained in the language they understand and informed consent was obtained for those who fulfilled inclusion and exclusion criteria.

Tampa scale of Kinesiophobia (TSK) was used to measure fear of movement / Kinesiophobia. It consists of 17 questions and each addressing intensity of pain and symptoms. The responses were measured in 4 point Likert scale where "totally disagree" is equivalent to one point, two for "partially disagree", "partially agree" and "totally agree" shares three and four points respectively. To obtain the final score it is necessary to invert scores of questions 4, 8, 12 and 16. The possibility score in the scale may range from minimum of 17 to utmost 68 points, being that the higher the score indicates (>37) higher the level of Kinesiophobia.

FLOW CHART



Material used

Pen, Paper

Tool used:

Tampa scale of kinesiophobia with 4 point likert scale.

Numerical pain rating scale.

Demographic data.

Study population

The study was conducted among 50 patients at various physiotherapy clinics of Surat.

Inclusion Criteria

Patients (both male and female) in age group between 40 to 70 years who had musculoskeletal shoulder pain (acute, subacute or chronic) and were able to understand English language.

Exclusion Criteria

Patient having any psychiatric disease.

Patients having any neurological deficit.

Patient who had undergone surgery of shoulder.

Data Analysis

The study data was analyzed with statistical package for the social science version 20 (SPSS Inc).

RESULT

Fifty completed questionnaires were collected and tabulated for analysis. Mean age of the study participant was 50.76±9.31 years. In the sample space of 50, male participants were 52% and 48% were females. Prevalence of Kinesiophobia found positive among 80% (n=40) and 20% had demonstrated negative Kinesiophobia.

Pie chart showing population of our study.

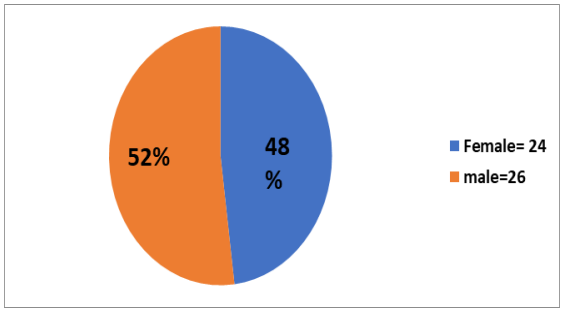


Figure1

It can be seen from the pie chart that out of total 50 study sample, 26 were males and 24 were females thus contributing 52% and 48% to our study population respectively.

Pie chart showing positive as well as negative TSK score.

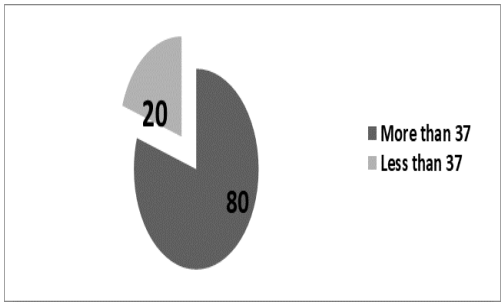


Figure 2

The above pie chart depicts that positive kinesiophobia was present among 80% of study samples while 20% of study samples shows negative kinesiophobia.

Mean value of age, TSK and NPRS was found to be 50.76±9.310, 42.24±5.490 and 5.88±1.452 respectively which is shown in table1.

Table 1 Descriptive statistics of AGE, TSK and NPRS

	N	Minimum	Maximum	Mean	Std. deviation
Age	50	32	71	50.76	9.310
Tampa scale score	50	26	53	42.24	5.490
NPRS	50	3	9	5.88	1.452

Correlation Between Age And Kinesiophobia

As per descriptive statistics of correlation between age and TSK, pearson correlation i.e, r = 0.215 which shows that there was positive correlation present between age and kinesiophobia and it is shown in table2 below.

Table2:- Descriptive statistics of correlation between age and TSK score

		Age	Tampa scale score
Age	Pearson correlation	1	0.215
	sig. (2-tailed)		0.133
	N	50	50
Tampa scale score	Pearson correlation	0.215	1
	Sig. (2-tailed)	0.133	
	N	50	50

Pearson correlation value of age with TSK score is 0.215 which is shown in table 2. Thus there positive correlation between age and TSK which means that with increase in age, fear of movement increases.

Scattered diagram showing correlation between age and kinesiophobia

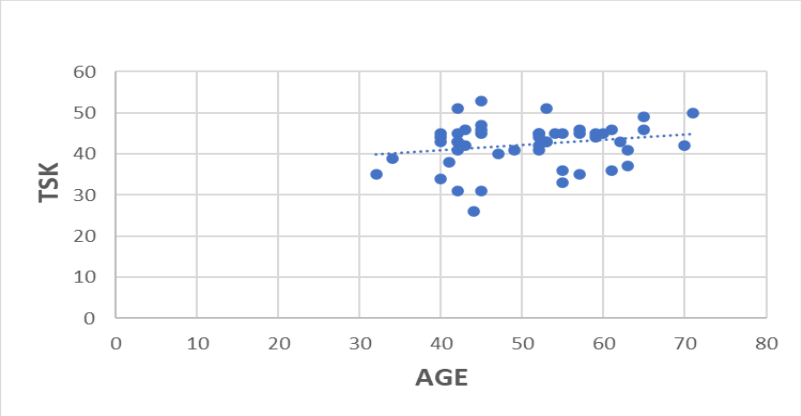


Figure3

The given figure3 shows that with increase in age there is increase in TSK score which means that with increasing age fear of movement increases.

Correlation Between Pain And Kinesiophobia

Table3

		NPRS	Tampa scale score
NPRS	Pearson correlation	1	0.275
	Sig. (2-tailed)		0.053
	N	50	50
Tampa scale score	Pearson correlation	0.275	1
	Sig. (2-tailed)	0.053	
	N	50	50

Pearson correlation value of NPRS with TSK score is 0.275 which means there is positive correlation between pain and kinesiophobia

Scattered diagram showing correlation between pain and kinesiophobia.

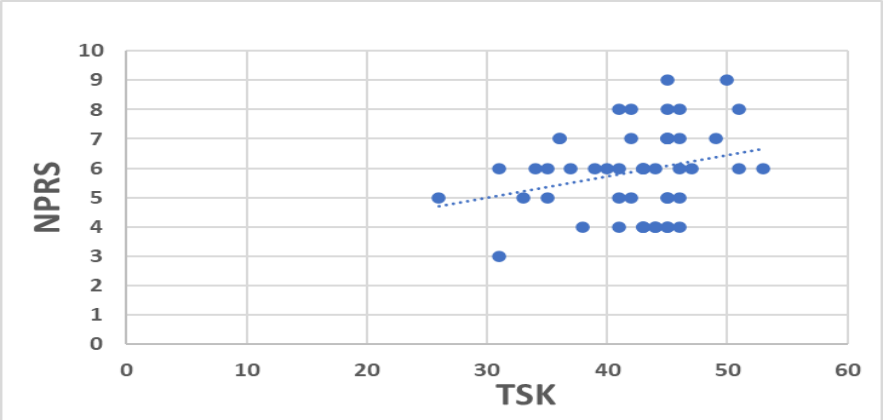


Figure-4

It has been observed from figure 4 as the pain intensity increases in patients the development of Kinesiophobia also increased and its association exhibited as positive linear correlation

DISCUSSION

Psycho-social factors are widely recognized to be responsible in the transition from

Acute to chronic pain and also in the maintaining of chronic pain. According to the

Fear avoidance model of pain, pain-related fear and avoidance behaviours may play an important role in those processes. Asymmetries and non-coordinated movement patterns 'guarded movements' in gait have been found to be associated with low back pain (Arendt-Nielsen et al. 1996) and asymmetries in gait are correlated with pain behaviour (Keefe and Hill 1985). Main and Watson (1996) and Watson et al. (1997) have suggested that pain-related fear plays a more important role in the development of guarded movements than pain severity or disability levels. One aspect of pain-related fear is fear of movement / kinesiophobia, measured by the Tampa Scale of Kinesiophobia (TSK). Avoidance behaviours may also be evaluated by the TSK or by pain behavior assessment measures. For clinical rehabilitation practice, reliable and valid assessment tools and outcome measures are needed. [6] This study explored the prevalence of Kinesiophobia in subjects with shoulder pain and its correlation with age and pain.

Positive Kinesiophobia was found in our study.

Findings of our study are in line with the previous study conducted by Parag Sancheti et al in 2017 which revealed that 124 out of 201 subjects scored 37 or above in Tampa Scale of Kinesiophobia, which shows 61.69% of the patients post ACL reconstruction had Kinesiophobia i.e. fear of reinjury, present in them. [7] Our study includes 52% of male population and 48% of female population. Our findings suggest that 40 subjects out of 50 subjects scored 37 or above in Tampa Scale of Kinesiophobia, which shows 80% of the patients of shoulder pain had Kinesiophobia i.e. fear of reinjury, present in them and so were having fear of movement .

Our study also showed that there was a positive correlation seen between the NPRS and the TSK scores wherein most of the patients had lesser pain and thus lesser phobia which reinforces the findings of a previous study conducted by Pothiraj Pitchai et al to find out impact of kinesiophobia on quality of life in subjects with low back pain. In that study 67% of subjects with Kinesiophobia demonstrated severe pain intensity whereas in subjects without Kinesiophobia, majority of 64% of them showed moderate intensity of pain and had been observed as the pain intensity increases in LBP the development of Kinesiophobia also increased and its association exhibited as weak positive linear correlation. [8] Also when the data was analyzed to know about TSK scoring in different age group, it has been seen that as the age increases scores of TSK also increases as supported by literature that scores of TSK are at higher side in geriatric patients. [4] Our study shows higher score of TSK in older adults suggesting that with increase in age there is increase in fear of movement.

Previously study was done by Bennett Rack ATC, LAT, CES in 2014 to show the relationship between disability and fear avoidance in athletes with acute musculoskeletal injuries. The purpose of this study was to establish the relationship between kinesiophobia and disability in an athletic population. Moderate, significant relationships were identified between pain catastrophizing and kinesiophobia as well as pain and kinesiophobia. [9] However, our study also shows moderate significant correlation between pain and kinesiophobia with p value 0.275.

Previously kinesiophobia has been measured in patients with chronic lower back pain, [10-11] post-operative ACL, [12-13]

and post-operative shoulder. [14] However, our study measures kinesiophobia in patients with musculoskeletal shoulder pain.

Limitations
Small sample size.
No other functional outcome measures was used except TSK and NPRS.

Future Implication
Further studies can be done about kinesiophobia in patients with any neurological disorder.
Also, studies can be done to find out the impact of kinesiophobia on physical therapy treatment as well as recovery time period of patients

CONCLUSION

This study concludes that there is high degree of kinesiophobia among patients having shoulder pain. In addition, there is positive correlation between age and kinesiophobia as well as pain and kinesiophobia.

Conflict of Interest: None
Ethical Approval: Approved

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