

Prevalence of Kinesiophobia in Post Spinal Surgery Patients

Dhanashree Bhise¹, Anagha Palkar², Ajay Kumar³

^{1,2,3}DPO'S Nett College of Physiotherapy, Kolshet Road, Opposite Everest world, Thane West.

Corresponding Author: Dhanashree Bhise

ABSTRACT

Background: The spinal column is a highly complex system of bones and connective tissues that provide support for the body and protect the delicate spinal cord and nerves. Back surgery carries higher risks than some other types of surgery because it is done closer to the nervous system. The most serious of these risks include paralysis and infections. Fear of movement/(re)injury is described as “a specific fear of movement and physical activity that is (wrongfully) assumed to cause reinjury”. In the extreme situation of fear of movement, the expression “kinesiophobia” is used. Tampa Scale for Kinesiophobia (TSK) was developed by Miller, Kori and Todd 1990 in order to assess fear of movement/(re)injury. It is a valid, reliable tool is used to assess Kinesiophobia.(1)

Aim: The present study was done to Assess Prevalence of Kinesiophobia In patients undergone Spinal Surgery using Tampa Scale (6- 10 weeks post surgery).

Method: In this study a total of 100 patients answered Tampa scale of kinesiophobia and were evaluated according to their level of kinesiophobia after post spinal surgical period 6- 10 weeks, that is after the healing period.

Result: There was a high degree of kinesiophobia which was observed after post spinal surgical period 6-10 weeks in 61% of the participants.

Conclusion: This study showed Prevalence of High Degree of Kinesiophobia noted after 6-10 weeks in 61% of the Post- Spinal Surgery patients even after 4-6 weeks of healing period.

Keywords: Kinesiophobia, Fear-avoidance, Spinal surgery, Tampa scale

INTRODUCTION

The spinal column is a highly complex system of bones and connective tissues that provide support for the body and protect the delicate spinal cord and nerves.

The spinal column includes a series of vertebral bodies stacked upon one another.

Spine surgery is a field of operative medicine which include unique surgical specialty typically involving both Orthopedic and Neurosurgical specialists.

Spinal surgery is indicated in conditions related to musculoskeletal or nerve compression, trauma, degenerative spine disease, rheumatoid cervical spine disease, cauda equina syndrome, spinal cord

compression and adolescent idiopathic scoliosis.⁽¹²⁾

Back surgery carries higher risks than some other types of surgery because it is done closer to the nervous system. The most serious of these risks include paralysis and infections.

Even with a successful surgery, the recovery time can be long. Depending on the type of surgery and patient's condition before the surgery, healing may take months. And there could be loss of some flexibility permanently.⁽⁹⁾

Patients who have chronic, disabling lower back pain after one or more spinal surgeries are said to have failed back surgery syndrome.⁽⁹⁾

Pain-related fear has been shown to be a very salient predictor of pain disability in a chronic pain population and is even more predictive than biomedical status and pain intensity. It has been stated that pain-related fear is more disabling than pain itself.

Pain-related fear predicts future disability and health status in the general population. There are different terms for describing pain-related fear. In 1983, Lethem et al. introduced the “fear-avoidance” model.⁽¹³⁾

The model is an attempt to explain how and why some individuals develop a stronger psychological reaction to their pain problems than others.

In addition, affective factors, particularly fear, has proven to be central in explaining and in understanding of persistent musculoskeletal pain. Fear of movement/(re)injury is described as “a specific fear of movement and physical activity that is (wrongfully) assumed to cause reinjury”. In the extreme situation of fear of movement, the expression “kinesiophobia” is used. Some patients seem afraid to move their body and consequently avoid physical activity and exercise. Avoidance behaviour is adaptive as a natural response to acute injury.⁽¹⁾

Kinesiophobia is considered to play a negative role in the outcome of rehabilitation for patients with low back pain, and a high prevalence of kinesiophobia has been observed in patients with persistent low back pain. Since physical activity/exercise is a crucial part of the rehabilitation program after surgery, kinesiophobia is probably a factor that prevents recovery. Tampa Scale for Kinesiophobia (TSK) was developed by Miller, Kori and Todd 1990 in order to assess fear of movement/(re)injury. It is a valid, reliable tool is used to assess Kinesiophobia.⁽¹⁾

The Tampa Scale of Kinesiophobia consists of 17 questions, wherein there are four options namely: 1-strongly disagree, 2-disagree, 3-agree, 4-strongly agree and the

total score of which adds up to 68. A score ≥ 37 is suggestive of Kinesiophobia.⁽¹⁾

METHOD

MATERIALS

- Tampa Scale for Kinesiophobia.
- Pencil/Pen.
- Performance recording sheet.

METHODOLOGY

STUDY DESIGN:

- Type of Study: Cross sectional Observational study.
- Population: Post Spinal Surgery Patients.
- Duration of study: 12 Months.

SAMPLE DESIGN:

- Type of Sampling: Convenient sampling.
- Sample size: 100.
- Location: Metropolitan City.

SELECTION CRITERIA

INCLUSION CRITERIA

- Subjects willing to participate.
- Subjects undergone spinal surgery.
- Post-surgical period: 6-10 weeks.
- Age group: 30 to 50.
- Both male and female patients.

EXCLUSION CRITERIA

- Vestibular or neurological deficits.
- Recent any other surgery or implant in other part of body.
- Patients with cardiorespiratory condition.
- Patient diagnosed with Psychological disorder.
- Extensive lower limb paresis.
- Failed spine surgery.

Procedure:

Post spinal surgery (4 -6 weeks) individuals willing to participate were included in the study according to the inclusion and exclusion criteria. Prior to starting the study a written consent was taken from all the subjects in the language

best understood by them. Subjects were explained about the purpose of the study and the procedure was explained to the subjects prior to the study. Subjects were asked to participate and complete the Questionnaire. Subjects were explained about the Tampa Scale of Kinesiophobia (TSK) and were then asked to fill it. Their scores were then calculated and analysis was done.

The Tampa Scale of Kinesiophobia consists of 17 questions, wherein there are four options namely: 1-strongly disagree, 2-disagree, 3-agree, 4-strongly agree and the

total score of which adds up to 68. A score ≥ 37 is suggestive of Kinesiophobia.

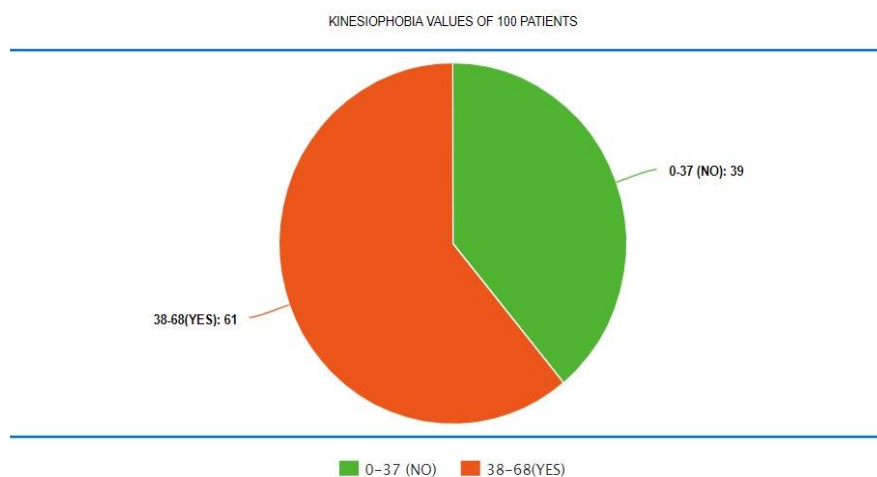
Analytical statistics:

Data was collected on a record sheet and was analysed on computer.

Record sheet was made using Microsoft excel and pie chart figures were plotted using Microsoft excel windows 10.

RESULT

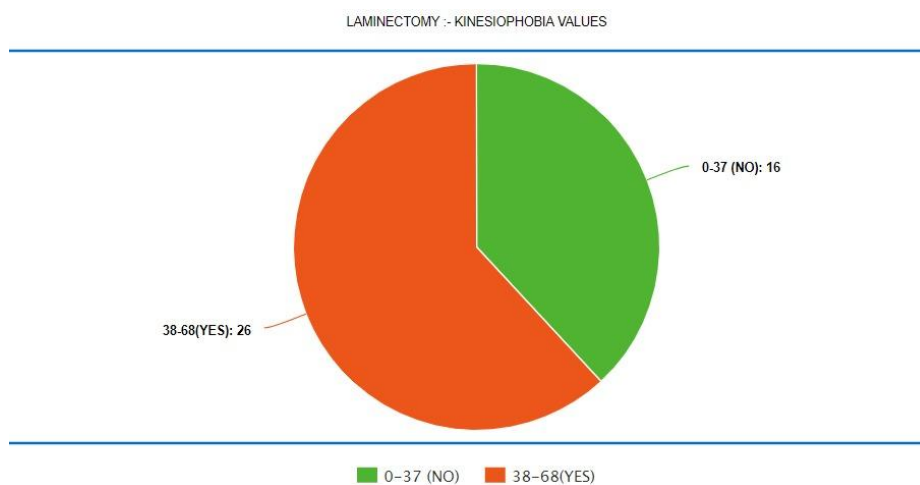
There is a High Degree of Kinesiophobia noted after 6-10 weeks in 61% of the Post- Spinal Surgery patients even after 4-6weeks of healing period.



GRAPH 1: Values of Kinesiophobia of 100 subjects:

Interpretation:

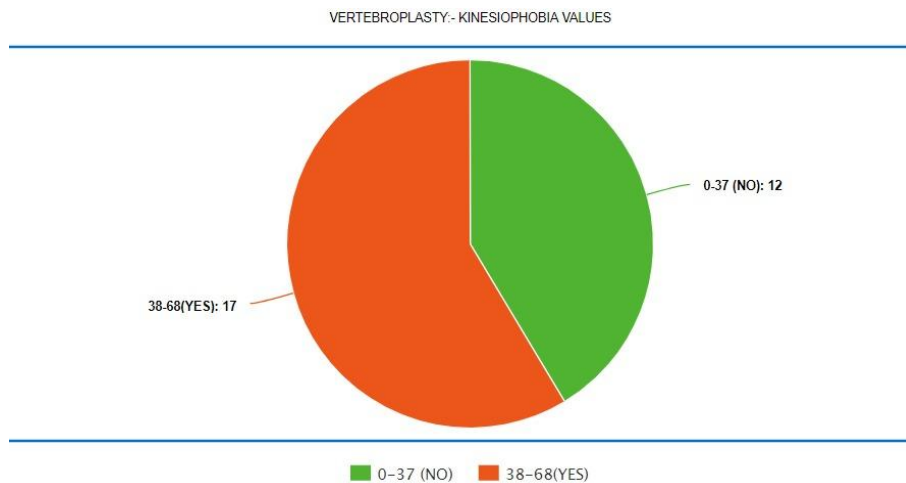
- The Above Pie Chart elucidates that after calculating the results of Tampa Scale score 61 subjects out of 100 showed Kinesiophobia post-surgical period 6-10 weeks.
- 39 subjects of 100 did not show Kinesiophobia Post-Spinal surgery.



GRAPH 2: Values of Laminectomy:

Interpretation:

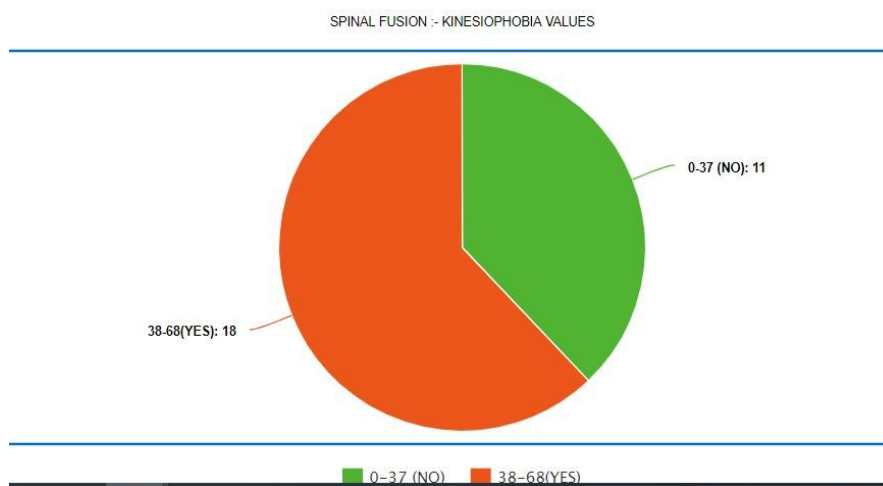
- The above pie chart elucidates after calculating the results of Tampa Scale score 61 subjects out of 100 showed Kinesiophobia Post-Surgical period 6-10 weeks.
- Out of 61 subjects 42 subjects went through Laminectomy surgery out of which 26 showed Kinesiophobia Post-Spinal surgery.
- 16 subjects of 42 subjects did not show Kinesiophobia.
- 26 subjects of 42 subjects had Kinesiophobia that has a percentage of 61.92%.



GRAPH 3: Values of Vertebroplasty:

Interpretation:

- The above pie chart elucidates after calculating the results of Tampa Scale score 61 subjects out of 100 showed Kinesiophobia Post-Surgical period 6-10 weeks.
- Out of 61 subjects 29 subjects went through Vertebroplasty surgery out of which 17 showed Kinesiophobia Post-Spinal surgery.
- 12 subjects of 29 subjects did not show Kinesiophobia.
- 17 subjects of 29 subjects had Kinesiophobia that has a percentage of 58.62%.



GRAPH 4: Values of Spinal Fusion:

Interpretation:

- The above pie chart elucidates after calculating the results of Tampa Scale score 61 subjects out of 100 showed Kinesiophobia Post-Surgical period 6-10 weeks.
- Out of 61 subjects 29 subjects went through Spinal Fusion surgery out of

which 18 showed Kinesiophobia Post-Spinal surgery.

- 11 subjects of 29 subjects did not show Kinesiophobia.
- 18 subjects of 29 subjects had Kinesiophobia that has a percentage of 62.06%.

DISCUSSION

In the present study, 100 participants were selected according to Inclusion and Exclusion criteria, their scores were calculated and analysis was done. The purpose of this study was to improve clinical decision making in patients with Post- Spinal surgery after the standard healing period that is 6-10 weeks by investigating fear avoidance in predicting spine related pain or disability, physical and psychological factors play important role in recovery.

According to the data analysis, A High Degree of Kinesiophobia was noted after 6-10 weeks, that is even after the healing period which is about 4- 6 weeks, in Post- Spinal surgery patients, which was observed in 61% of the participants.

Spinal Surgery is indicated in conditions related to musculoskeletal or nerve compression, trauma, degenerative spine disease, rheumatoid cervical spine disease, cauda equina syndrome, spinal cord compression and adolescent idiopathic scoliosis.

Laminectomy is a procedure that is used to treat spinal stenosis or pressure on the nerves of the low back. The surgery involves an incision on the back of the spine that allows the surgeon to remove bone spurs and thickened ligaments that are pressing on the nerves of the low back.

Spinal fusions are used to treat instability of the spine, scoliosis, severe degeneration of the discs, or a combination of these issues. Spinal fusion involves using bone from the patient's body to fuse one vertebra to another. Spinal instrumentation (pedicle screws) is placed into the vertebrae to stabilize the motion segment and assist with the fusion process.

Vertebroplasty is a procedure used to strengthen a collapsed vertebral body (bones of the spine) due to osteoporosis, tumor or trauma. Special cement is injected into the vertebrae, which can relieve pain and may prevent further collapse of the vertebrae.

Back surgery has serious risks as it is operated closer to the Nervous system which may lead to loss of some flexibility permanently. Physical activity/exercise is a crucial part of the rehabilitation program after surgery, Kinesiophobia is probably a factor that prevents recovery.⁽¹²⁾

Pain-related fear of movement has been shown to be a very salient predictor of pain disability in a chronic pain population and is even more predictive than biomedical status and pain intensity. It has been stated that pain-related fear of movement is more disabling than pain itself. Pain-related fear predicts future disability and health status in the general population.

Kinesiophobia is considered to play a negative role in the outcome of rehabilitation for patients with low back pain, and a high prevalence of Kinesiophobia has been observed in patients with persistent low back pain. Since physical activity/exercise is a crucial part of the rehabilitation program after surgery, kinesiophobia is probably a factor that prevents recovery.

Tampa Scale for Kinesiophobia (TSK) was developed by Miller, Kori and Todd 1990 in order to assess fear of movement/(re)injury. It is a valid, reliable tool is used to assess Kinesiophobia. The Tampa Scale of Kinesiophobia consists of 17 questions, wherein there are four options namely: 1-strongly disagree, 2- disagree, 3-agree, 4-strongly agree and the total score of which adds up to 68. A score ≥ 37 is suggestive of Kinesiophobia.⁽¹⁾

This study also helps to determine the predictive capacity of the combined comprehensive set of measures that includes motor, sensory, psychological measures encompassing the broad bio psychological model of pain related fear of movement

after the healing period that is 6-10 weeks in Post-Spinal surgery patients.

The previous studies shows that, The fear of movement suggests that pain that is perceived as threatening will promote anxiety and give rise to pain-related fear of movement.⁽²⁾ The fear-avoidance describes how psychological factors can result in avoidance behavior.

The fear of movement is present in pain-free, acute, and chronic pain populations and has been shown to influence pain and disability after lumbar disc surgery.⁽³⁾

Degenerative and isthmia spondylolisthesis may progress to lumbar spinal stenosis (LSS), which is defined as a narrowing of the lumbar spinal canal commonly caused by degenerative spinal conditions.⁽¹¹⁾

Low back pain (LBP), radicular pain, lower limb motor impairment and claudication, caused by the entrapment and compression of intraspinal vascular and nervous structures, are reported in symptomatic subjects. Patients with chronic and disabling symptoms secondary to spondylolisthesis and LSS who fail to respond to conservative management may be referred for surgery to reduce pain, improve spinal function, and increase the quality of life after a careful analysis of indications and outcomes.

Spinal surgery is recommended in the presence (i.e. spondylolisthesis) or expectation of spinal instability (e.g. following a wide Laminectomy for Lumbar canal stenosis).⁽¹¹⁾

The experience of chronic pain in the patients who undergo spinal surgery may still present a disuse syndrome characterised by the abnormal use of the spine, changes to the structure of the trunk muscles, physical inactivity and limitations to usual life activities.

With regard to the fear-avoidance model, psychological factors such as catastrophising, fear-avoidance beliefs, and mood alterations may coexist and become important determinants of chronic

symptoms, disability and illness behaviours that induce subjects to sacrifice everyday tasks or the use of adaptive coping strategies.⁽¹¹⁾

Hence, there is High Degree of Kinesiophobia noted after 6-10 weeks in 61% of the Post- Spinal Surgery patients even after 4-6weeks of healing period, but further studies may be required.

CONCLUSION

Therefore, the above study shows Prevalence of High Degree of Kinesiophobia noted after 6-10 weeks in 61% of the Post- Spinal Surgery patients even after 4-6weeks of healing period. Kinesiophobia is noted among patients with Post-Spinal surgery which ought to be taken into consideration when designing and performing rehabilitation programmes.

Study Limitation

Sample Size was only 100, a large sample size would give better results. Further study can be done with larger sample size. Only three spinal surgeries were taken, other spinal surgeries can be further taken in the study. Age group was only 30-50 years, Patients below 30 years or above 50 years can be used for further studies.

CLINICAL IMPLICATION

Kinesiophobia predicts fear of movement, pain and disability in patients with Spinal surgery. High scores on the Tampa Scale of Kinesiophobia shows the level of an individual's disability compared with clinical signs and symptoms, intensity and duration of pain and anxiety. Physical activity/exercise is a crucial part of the rehabilitation program after surgery, Kinesiophobia is probably a factor that prevents recovery. Kinesiophobia is noted among patients with Post-Spinal surgery which ought to be taken into consideration when designing and performing rehabilitation programmes. This study helps to improve clinical decision making in patients with Post- Spinal surgery after the

standard healing period that is 6-10 weeks by investigating fear avoidance in predicting spine related pain or disability, physical and psychological factors play important role in recovery.

Competing Interest

The authors declare that they have no competing interest.

Authors' Contribution

Dhanashree Bhise participated in the design of the study, data collection, drafting the manuscript and in performing the statistical analysis. Dr. Anagha Palkar has provided with guidance in performing the statistical analysis and research. Authors read and approved the final manuscript.

ACKNOWLEDGEMENTS

The authors wish to thank all the hands which have joined together to make this project a success. Many thanks to Dr Ajay Kumar who immensely helped me and rendered their advice, precious time, constant encouragement, knowledge and relevant information regarding my study.

Source of Funding: None

REFERENCES

1. Gunilla Limbäck Svensson, Mari Lundberg, and Gunilla Kjellby Wendt, High degree of kinesiophobia after lumbar disc herniation surgery: A cross-sectional study of 84 patients. *Acta Orthop.* 2011 Dec;82(6):732-6. doi: 10.3109/17453674.2011.636674.
2. Kristin R. Archer, The Effect of Fear of Movement Beliefs on Pain and Disability After Surgery for Lumbar and Cervical Degenerative Conditions. *SPINE* Volume 36, Number 19, (2011) 1554–1562
3. Kristin R. Archer, Early postoperative fear of movement predicts pain, disability, and physical health six months after spinal surgery for degenerative conditions. *The Spine Journal* 14 (2014) 759–767
4. Bayard R. Wilson et al. Depression after Spinal Surgery: A Comparative Analysis of the California Outcome Database. *Mayo Clin Proc.* 2017 Jan;92(1):88-97. doi: 10.1016/j.mayocp.2016.06.030.
5. Yu-Shun Fang, Qing-Song Zhang, Quality of life after lumbar spinal surgery. *Biomedical Research* 2016; 27 (1): 155-58
6. Nancy E. Epstein. Spine surgery in geriatric patients: Sometimes unnecessary, too much, or too little. *Surg Neurol Int.* 2011; 2: 188.
7. Marco Monticone, Management of catastrophising and kinesiophobia improves rehabilitation after fusion for lumbar spondylolisthesis and stenosis. A randomised controlled trial. *Eur Spine J* (2014) 23:87–95
8. Tathiana O, Prevalence of anxiety, depression and kinesiophobia in patients with low back pain and their association with the symptoms of low back spinal pain. *Rev Bras Reumatol* 2016, Pages 330-336
9. Gilberto Gomez, Clinical and radiographic outcomes using third-generation bioactive glass as a bone graft substitute for multi-level anterior cervical discectomy and fusion—a retrospective case series study. *Journal of Spine Surgery* Vol 7, 2021 Jun: 7(2): 124–131.
10. Mari Lundberg, Kinesiophobia among patients with musculoskeletal pain in primary healthcare. *J Rehabil Med* 2006; 38: 37- 43

How to cite this article: Bhise D, Palkar A, Kumar A. Prevalence of kinesiophobia in post spinal surgery patients. *Int J Health Sci Res.* 2021; 11(10): 202-208. DOI: <https://doi.org/10.52403/ijhsr.20211026>
