

# Prevalence and Impact of Psychiatric Co-Morbidity in Patients with Spinal Pathology in Basrah, Iraq: A Systematic Review

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## Abstract

The care of surgical patients should not be limited to the details of the pathological process and the surgical technique. There is a real need for psychiatric evaluation before performing surgery. The systematic review was written to highlight the occurrence of psychiatric comorbidity in patients undergoing spinal surgery. Out of 487 articles, 13 were included in the study because they met the inclusion criteria. Overall, the study provides insight into the relationship between preoperative depression and a variety of outcomes, particularly opioid use, following spine surgery. Furthermore, both orthopaedic literature and broader chronic disease literature underscore the importance of addressing emotional wellbeing before performing orthopaedic procedures. Moreover, a psychological evaluation is also required before the implantation of the spinal cord simulator.

## Index Terms

Psychology, Spine surgery, Depression, Basrah, Iraq.

## I. INTRODUCTION

The care of surgical patients should not be limited to the details of the pathological process and the surgical technique. There is a real need for psychiatric evaluation before performing surgery. Pre-operative mental health screening should be a routine part of the evaluation of patients with chronic pain for whom surgery is being considered.<sup>[1]</sup> Depending on the psychiatric evaluation, the surgeon can decide whether the patient is a good candidate for surgery. Many mental health problems can create problems in the post-operative period, which include patients with anxiety, depression, those with poor self-image or with body dysmorphism.

The following five patient-related factors were identified as being associated with the development of persistent postoperative pain: anxiety, depression, pain catastrophizing, pain sensitivity, and preoperative opioid consumption.<sup>[2]</sup> Daubs et al. <sup>[3]</sup> confirm that the clinical impression of spinal surgeons is not as accurate as a standard questionnaire in assessing psychological distress.

The physician rate of sensitivity when assessing high-level distress was 28.7%, and a large percentage of patients (64%) presenting for spinal evaluation had some level of psychological distress.<sup>[3]</sup>

## II. METHODS

The systematic review was written under the guidance of an adapted version of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist.

### Aims :

The primary goal of this study was to determine the prevalence of psychiatric comorbidity in patients admitted for spinal surgery. The secondary aim is to describe the patient characteristics, demographics, and impact of patients with psychiatric comorbidity undergoing spinal surgery.

### Study Limitations :

Stigma with regard to mental health problems may make patients unwilling to participate. The initial

identification of patients does rely on the interaction and rapport of the clinical staff with the research staff.

### Inclusion criteria :

- Patients that are admitted to the spinal surgical team.
- And are at least 18 years old.

### Exclusion criteria :

- Patients that are under 18 years old.

### Search Strategy :

An electronic database search was conducted on ScienceDirect, Springer, PubMed, and Cochrane electronic databases. As seen in *Fig.1*, the search terms "psychological impact on spine" were crucial in our database search in enabling us to find articles relevant to our inclusion criteria (which are detailed below).

The image shows a screenshot of the PubMed.gov search interface. The search bar contains the text "psychological impact on spine". Below the search bar, there are options for "Advanced", "Create alert", and "Create RSS". To the right of the search bar is a "Search" button and a "User Guide" link. Below the search bar, there are buttons for "Save", "Email", and "Send to". To the right of these buttons, there is a "Sorted by: Best match" dropdown and a "Display options" button. Below the search bar, there is a "MY NCBI FILTERS" section with a "326 results" count. On the left side, there is a "RESULTS BY YEAR" section with a bar chart showing the number of results from 1986 to 2021. Below the bar chart, there is a "TEXT AVAILABILITY" section with checkboxes for "Abstract" and "Free full text". On the right side, there are two search results listed. The first result is titled "Virtual Reality, Augmented Reality, Gamification, and Telerehabilitation: Psychological Impact on Orthopedic Patients' Rehabilitation." and is by Berton A, Longo UG, Candela V, Fioravanti S, Giannone L, Arcangeli V, Alciati V, Berton C, Facchinetti G, Marchetti A, Schena E, De Marinis MG, Denaro V. The second result is titled "The short-term impact of COVID-19 pandemic on spine surgeons: a cross-sectional global study." and is by Khattab MF, Kannan TMA, Morsi A, Al-Sabbagh Q, Hadidi F, Al-Sabbagh MQ, M Taha M, Bourghli A, Obeid I.

Figure 1 : Example of The Searching on PubMed on 8/may/2021

### III. RESULTS

| No. | Author                 | Article title  | Conclusion  | Sample size |
|-----|------------------------|--|---|-------------|
| 1.  | Matt Sikora et al.     | Helping spine surgeons detect pre-surgical psychological distress in complex spine patients: an observational pilot study.           | A comprehensive pre-surgical psychological evaluation may be beneficial to risk stratify and counsel patients being evaluated for surgical reconstruction of adult spinal deformities. <sup>[10]</sup>  | 129         |
| 2.  | Chloe O'Connell et al. | Preoperative depression, lumbar fusion, and opioid use: an assessment of postoperative prescription, quality, and economic outcomes. | Although these findings must be interpreted in the context of the limitations inherent to retrospective studies utilizing administrative data, they provide additional evidence for the link between a preoperative diagnosis of depression and adverse outcomes, particularly increased opioid use, following lumbar fusion. <sup>[11]</sup> | 60597       |
| 3.  | Arthur K. Young et al. | Assessment of Presurgical Psychological Screening in Patients Undergoing Spine Surgery Use and Clinical Impact.                      | A minority of surgeons reported using presurgical psychological screening. Surgeons were less likely to use PPS if they had completed residency <sup>[12]</sup>   | 340         |
| 4.  | Menendez et al.        | Psychiatric disorders and major spine surgery: epidemiology and perioperative outcomes.  | Patients with preoperative psychiatric disorders undergoing major spine surgery are at increased risk for perioperative adverse events and post hospitalization care, but its effect in perioperative mortality is more limited. <sup>[13]</sup>  | 5,382,343   |
| 5.  | Andrew R. Block et al. | The use of presurgical psychological screening   | These findings suggest that PPS should become a   | 204         |

|    |                                       |  |   |      |
|----|---------------------------------------|--|---|------|
|    |                                       | to predict the outcome of spine surgery.   | more routine part of the evaluation of chronic pain patients in whom spine surgery is being considered. <sup>[1]</sup>  |      |
| 6. | Neil al. et al.                       | Understanding Anxiety and Depression when Performing Spine Surgery: 120. Preoperative psychological factors significantly add to the predictability of chronic narcotic use: a two-year prospective study. | Psychological factors in the preoperative period are significant predictors of narcotic use two years postoperatively. The likelihood of chronic narcotic use following surgery is predictable and therefore may be proactively managed. Identifying predictors of chronic postsurgical narcotic use can enable surgeons to provide their patient with preventative resources. Managing chronic narcotic use is imperative, as it is central to the patient's overall health and quality of life. <sup>[14]</sup> | 1390 |
| 7. | P. Thorvaldsen & E.B. Sørensen et al. | Psychological vulnerability as a predictor for short-term outcome in lumbar spine surgery  | Psychological vulnerability was significantly associated with poor outcome irrespective of age, sex, pre-operative somatic health, and surgical findings. <sup>[15]</sup>   | 144  |
| 8. | Jake Esker & Andrew R. Block et al.   | Psychological Screening Before Spine Surgery: Avoiding Failed Surgery Syndrome.  | this article suggests that the inclusion of presurgical psychological screening within the diagnostic regimen of spine surgery candidate produces a number of benefits for providers, patients, and   | 99   |

|     |                           |  |   |     |
|-----|---------------------------|--|---|-----|
|     |                           |  | even for insurers and employers. Provider's experience lower failure rates from surgery, and their time and resources are more available to invest in patients with higher likelihood of successful outcome. <sup>[16]</sup>  |     |
| 9.  | ChenChen Costelloe et al. | An Analysis of Predictors of Persistent Postoperative Pain in Spine Surgery.   | Patient related preoperative risk factors for the development of chronic pain after spine surgery. While there are many studies investigating risk factors for developing chronic pain after surgical procedures that are not typically associated with chronic preoperative pain, the literature on patients after spinal surgery remains very limited. <sup>[2]</sup>                                     | 99  |
| 10. | Michael et al.            | Clinical Impression Versus Standardized Questionnaire: The Spinal Surgeon's Ability to Assess Psychological Distress | A large percentage of patients (64%) presenting for spine evaluation have some level of psychological distress. When compared with a standardized questionnaire designed to screen for psychological distress, spinal surgeons had low sensitivity rates to detect this distress. The routine uses of a standardized questionnaire to screen for psychological distress should be considered <sup>[3]</sup> | 400 |
| 11. | Sanna Sinikallio et al .  | Depression is associated with a poorer outcome   | The patients with a normal mood and those who   | 96  |

|     |                                     |   |   |     |
|-----|-------------------------------------|---|---|-----|
|     |                                     | of lumbar spinal stenosis surgery: a two-year prospective follow-up study   | recovered from depressive symptoms enjoyed the most favorable outcome. Depressive symptoms interfere strongly with the ability of patients to obtain an optimal surgery outcome. Treatment models including the assessment and treatment of depression are encouraged. [6]  |     |
| 12. | Tomoko Kitano CP et al.             | Preoperative psychological factors affecting surgical satisfaction of elderly patients with lumbar spinal stenosis            | Physical function and anxiety were identified as preoperative factors that affected patient satisfaction with surgery. Preoperative assessment of psychological factors and interventions for anxiety may help improve patient satisfaction after surgery for LSS. [7]  | 90  |
| 13. | S. Havakeshian A. F. Mannion et al. | Negative beliefs and psychological disturbance in spine surgery patients: a cause or consequence of a poor treatment outcome? | In a prospective model, baseline fear-avoidance beliefs about physical activity was the only statistically significant psychological factor predicting surgical outcome. Eur Spine J 123 Increasing frequency of LBP at baseline was an additional unique predictor of outcome but is not a modifiable entity and cannot therefore be manipulated in an attempt to improve outcomes. [17] | 159 |

**Table 1 : The Summary of The Enrolled Studies in Our Systematic Review**

#### IV. DISCUSSION

Of all the electronic database searches, out of 487, 13 articles were included in the study because they matched the inclusion criteria. The others were excluded because they were not related to spine surgery.

In the literature, pre-surgical psychological screening was used as a routine screen <sup>[1],[12]</sup> to predict the need for surgery (lower failure rate). <sup>[16]</sup> The outcome of surgery, the amount and need of narcotics to be used post operatively. <sup>[14]</sup>

Overall, the study provides insight into the relationship between preoperative depression and a variety of outcomes, particularly opioid use, following spine surgery. Given that depression is a potentially modifiable risk factor for adverse outcomes, future work might identify ways to mitigate the impact of depression and to improve outcomes for patients undergoing lumbar fusion. In assessing post-fusion outcomes, we believe that the preoperative assessment of depression should be included and that the disorder should be considered as a potentially impactful comorbid condition.

This failure of spinal surgeons to identify mental health symptoms indicates the importance of using a standardised questionnaire. Screening for mental health symptoms is likely to identify those patients at risk of poor postoperative outcomes with persistent pain and other complaints. The psychological risk factors in adult patients scheduled for spine surgery include depression, anxiety, anger, fear-avoidance of pain and injury, stress, recreational drug use, other pre-existing psychiatric comorbidities, and history of abuse. <sup>[4]</sup> The advantages of preoperative psychiatric screening and management include: less distress and anxiety before and after surgery; a reduced rate of surgical complications; less pain; less need for post-operative medications; a quicker recovery; and

increased patient satisfaction. All of the above are required in spinal practice.

Both orthopaedic literature and broader chronic disease literature underscore the importance of addressing emotional wellbeing before performing orthopaedic procedures. <sup>[5]</sup> It is well established that the mental health of patients influences the outcome of spinal surgery. Routine pre-operative assessment may reveal depression, which leads to poor outcomes of lumbar spine surgery. <sup>[6]</sup> Physical function and anxiety were identified as preoperative factors that affect patient satisfaction with surgery. Pre-operative assessment of psychological factors and intervention for anxiety may help in achieving better satisfaction after surgery for lumbar canal stenosis. <sup>[7]</sup>

Psychiatric screening of patients includes the search for pre-existing depression and anxiety. <sup>[8]</sup> The information requirements of the patient must be balanced with the anxiety that consent may induce. A psychological evaluation is also required before the implantation of the spinal cord stimulator, which is used for the treatment of chronic pain. Research has shown that psychological factors can predict poor outcomes for spinal cord stimulation.

A psychologist should assess mental health and social risk factors as well as individual understanding of spinal cord stimulation and the expectation for pain relief. <sup>[9]</sup> Even with using the hospital anxiety and depression scale, 21% of patients will not be diagnosed before surgery. Because spinal surgery is complex and technically very demanding, it is very much expected to discover odd behavioural patterns which may be related to the fear of an unknown future. The consenting process for the surgical procedure may trigger anxiety and fear.

After proper evaluation, we may end up with patients with no psychiatric comorbidity and no objection to surgery, or patients with psychiatric comorbidity that need caution and perioperative psychiatric

management, or patients with severe mental illness that will not allow surgery to be performed unless psychiatric treatment is initiated prior to surgery, or alternative treatments may be offered. Addressing psychiatric comorbidity before surgery may protect the patient from deterioration of their mental health and possibly the surgeon from litigation.

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