The psychological effect of Back Orthosis following a one- or two-level Lumbar fusion – Is it all in the mind?

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INTRODUCTION

The use of lumbar orthoses following lumbar fusion has not demonstrated significant differences in post-operative pain relief, recovery time, complication rates, or fusion success when compared to patients managed without bracing. Conversely, studies have highlighted potential complications associated with brace use.

Despite substantial evidence, many patients continue to prefer wearing a brace, reporting an increased sense of stability and protection. This raises the question of whether continued brace use is influenced primarily by a placebo-like psychological effect rather than a true physiological benefit.

This study aims to assess the psychological impact of brace use following one- or two-level lumbar fusion

MATERIALS & METHODS

This study was conducted at a single facility, with all surgical procedures performed by the same surgeon. Eligible participants included patients undergoing one- or two-level open posterior lumbar interbody fusion.

Exclusion criteria included revision surgery, trauma-related procedures, and patients with elevated BMI.

Patients were randomized pre-operatively to either receive a Miami Lumbar orthosis or no brace.

Post-operatively, patients completed the Pain Anxiety Symptom Scale (PASS-SF), together with additional questionnaires assessing brace usage, perceived support, and overall satisfaction.

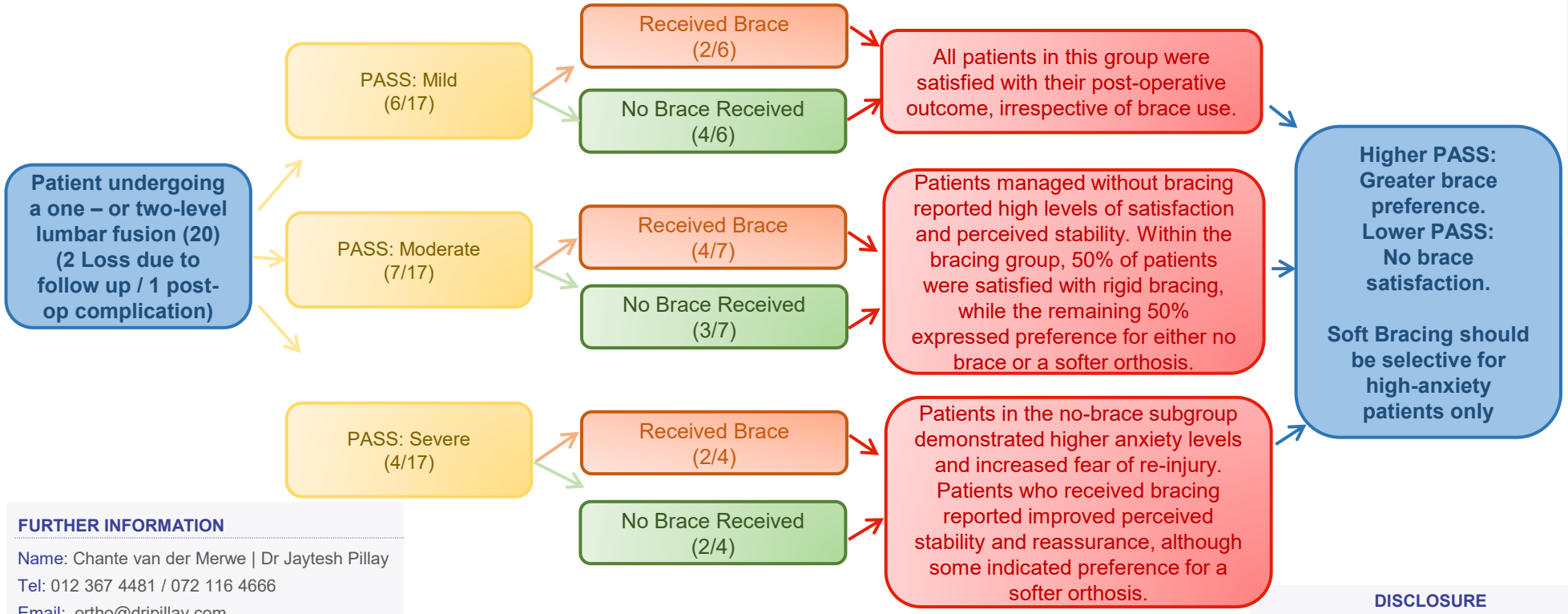
Follow-up assessments were performed prior to discharge, and at 2 weeks, 6 weeks, and 3 months post-operatively.

RESULTS

A total of 20 patients undergoing one- or two-level lumbar fusion were initially included. Following exclusions (two lost to follow-up and one excluded due to post-operative complications), 17 patients completed follow-up and were included in the final analysis.

All patients completed the Pain Anxiety Symptom Scale (PASS-SF) and supplementary questionnaires assessing perceived stability, brace preference, and satisfaction.

Brace group: n = 8
No-brace group: n = 9



DISCUSSION:

A key finding of this study is the strong psychological influence of anxiety on brace preference and perceived benefit. Patients with higher PASS scores consistently demonstrated greater reliance on external support, reporting that bracing improved their sense of security and reduced fear of re-injury. Similarly, patients randomized to the no-brace group with elevated PASS scores expressed that a brace would have improved their confidence and perceived stability.

In contrast, patients with lower anxiety levels demonstrated high confidence in their post-operative stability regardless of brace use.

Additionally, subgroup analysis suggests that rigid bracing may not be optimal for all patients. Several patients reported discomfort and, in some cases, increased pain associated with rigid orthoses, while expressing preference for either no brace or a softer, more tolerable alternative.

Importantly, patients in both the brace and no-brace groups demonstrated comparable recovery trajectories in terms of pain, mobility, and perceived functional stability. These findings support a more individualized approach to post-operative care. Rather than routine bracing, patient-specific psychological profiling may better guide orthotic use, particularly in patients with elevated pre-operative or early post-operative anxiety.

Conclusion:

Post-operative lumbar bracing following one- or two-level lumbar fusion does not appear to improve functional recovery, pain outcomes, or mobility.

However, brace use may provide psychological benefit in a subset of patients, particularly those with higher anxiety levels as measured by PASS scores.

When indicated, soft bracing may be preferable, offering psychological reassurance with improved comfort and reduced adverse effects compared to rigid orthoses.

The authors recommend that lumbar bracing should not be used routinely following one- or two-level lumbar fusion, but rather selectively in patients with elevated anxiety levels.

FURTHER INFORMATION

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DISCLOSURE

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CONFLICTS OF INTEREST

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