

Integration of the Biopsychosocial Model with a *NeuroHealth* Philosophy leads to Value-Based Interventional Pain Care

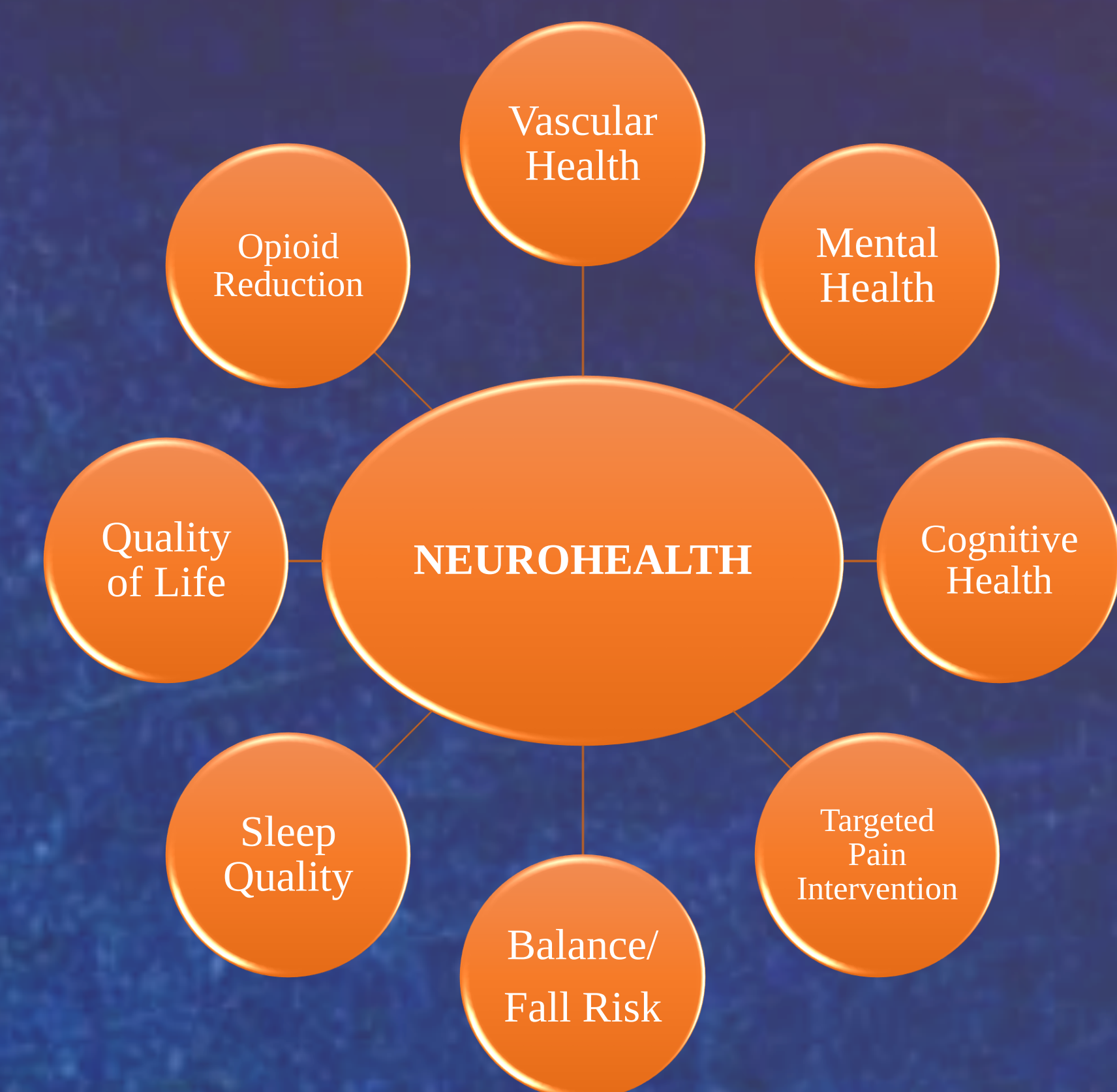
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Introduction

There is a growing need for cost-effective, non-opioid, non-surgical healthcare in the management of chronic spine pain. In the current study, we explore the benefits of including a “*NeuroHealth*” philosophy toward patient care. A visual representation of the *NeuroHealth* approach is displayed in Figure 1.

Figure 1. *NeuroHealth* Philosophy of Pain Management



Achieving “*NeuroHealth*” is designed to protect the nervous system from harm, and thereby reduce overall pain and suffering of the whole patient.

Materials & Methods

Retrospective chart review of 25 patients with chronic spinal pain undergoing *NeuroHealth* pain management for at least 48 months. Primary outcome measures were mean VRS pain reduction and ODI reduction. Secondary measures included pain burden reduction, patient satisfaction, patient safety and cost reduction.

NeuroHealth Program Interventions:

Electrophysiology
Electroencephalography
Quantitative EEG
Neurocognitive Testing
Dementia Screening
Sleep Testing
Neuroimaging
Musculoskeletal Ultrasound
Vascular Ultrasound
Microcirculation Testing
Fundus Photography
Autonomic Nervous System Testing
Vestibular Testing
Laboratory Medicine
Cognitive Behavioral Therapy
Biofeedback & EEG Neurofeedback
Vascular Health Education
Vascular Risk Factor Reduction
Weight Management Program
Fall Risk Reduction
Opioid Reduction Strategies
Durable Medical Equipment
Interventional Pain Management

Results

In the cohort of 25 patients, 67% were females and 33% males, with mean age 67. The baseline patient data is displayed in Figure 2. The Mean Pain Reduction (VRS) and Mean ODI Reduction is displayed in Figures 3 and 4. The percentage of patients with Pain Burden Reduction is displayed in Figure 5. Secondary outcome measures are displayed in Table 1. Cost Burden Reduction is displayed in Figure 6.

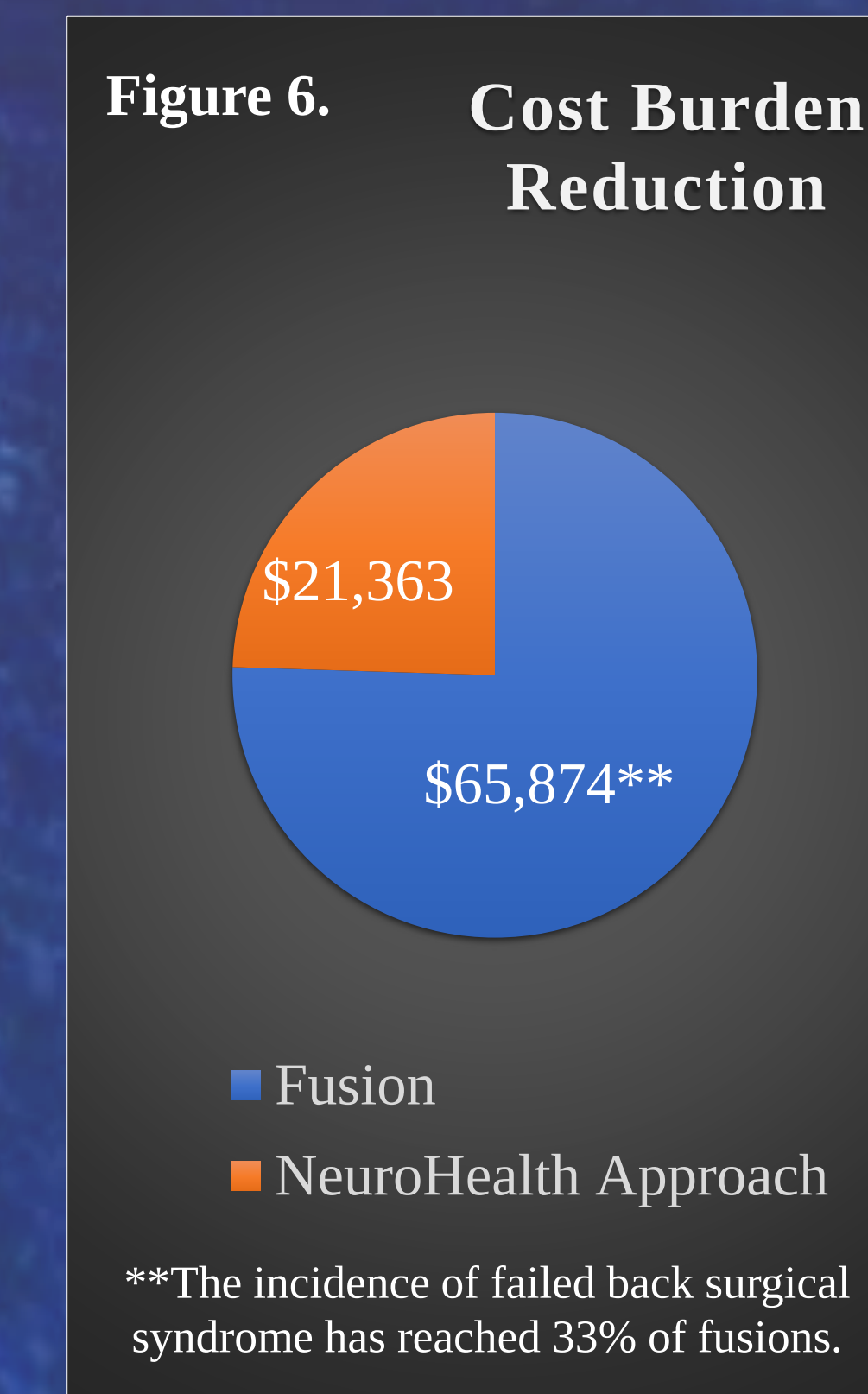
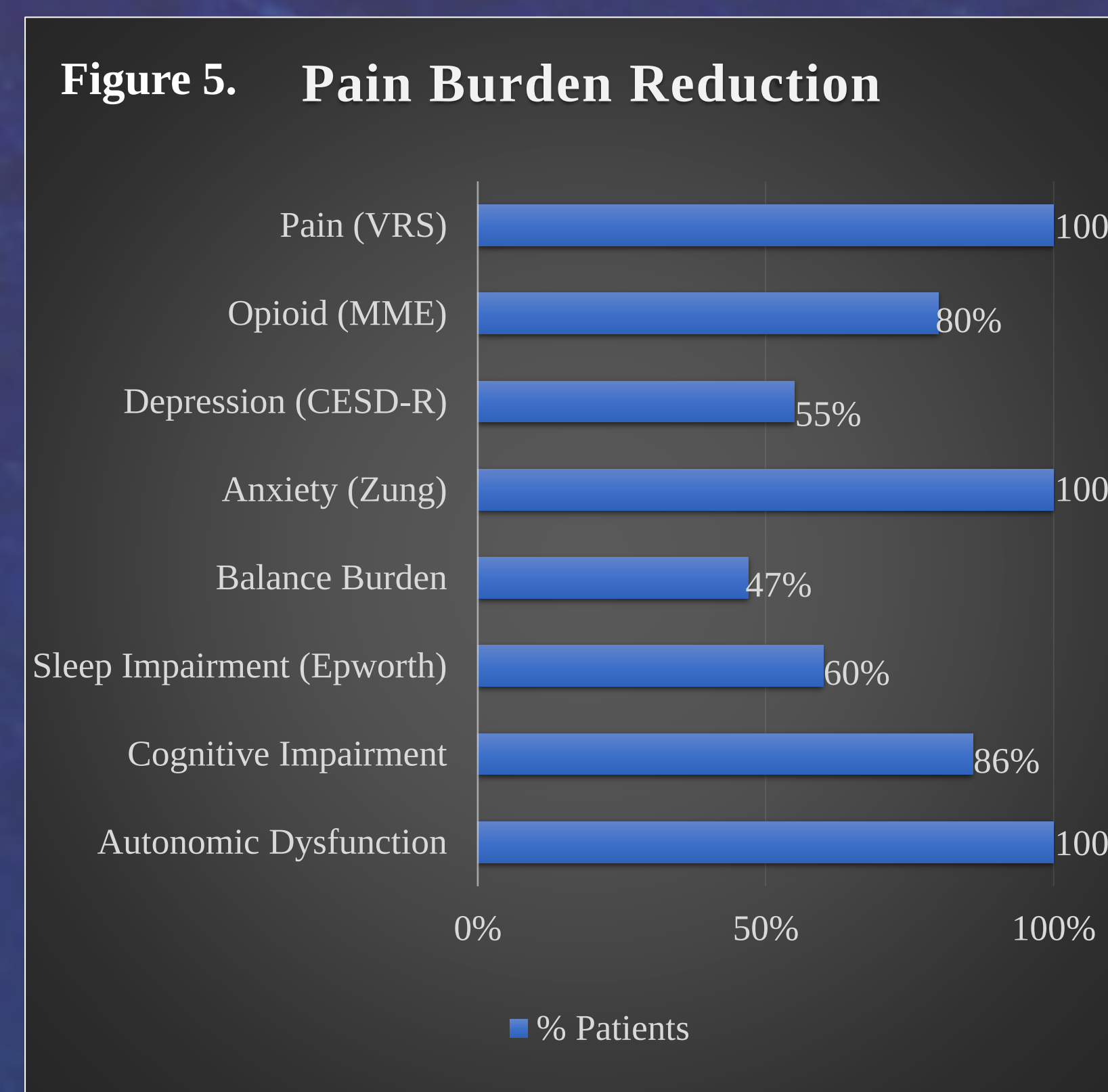
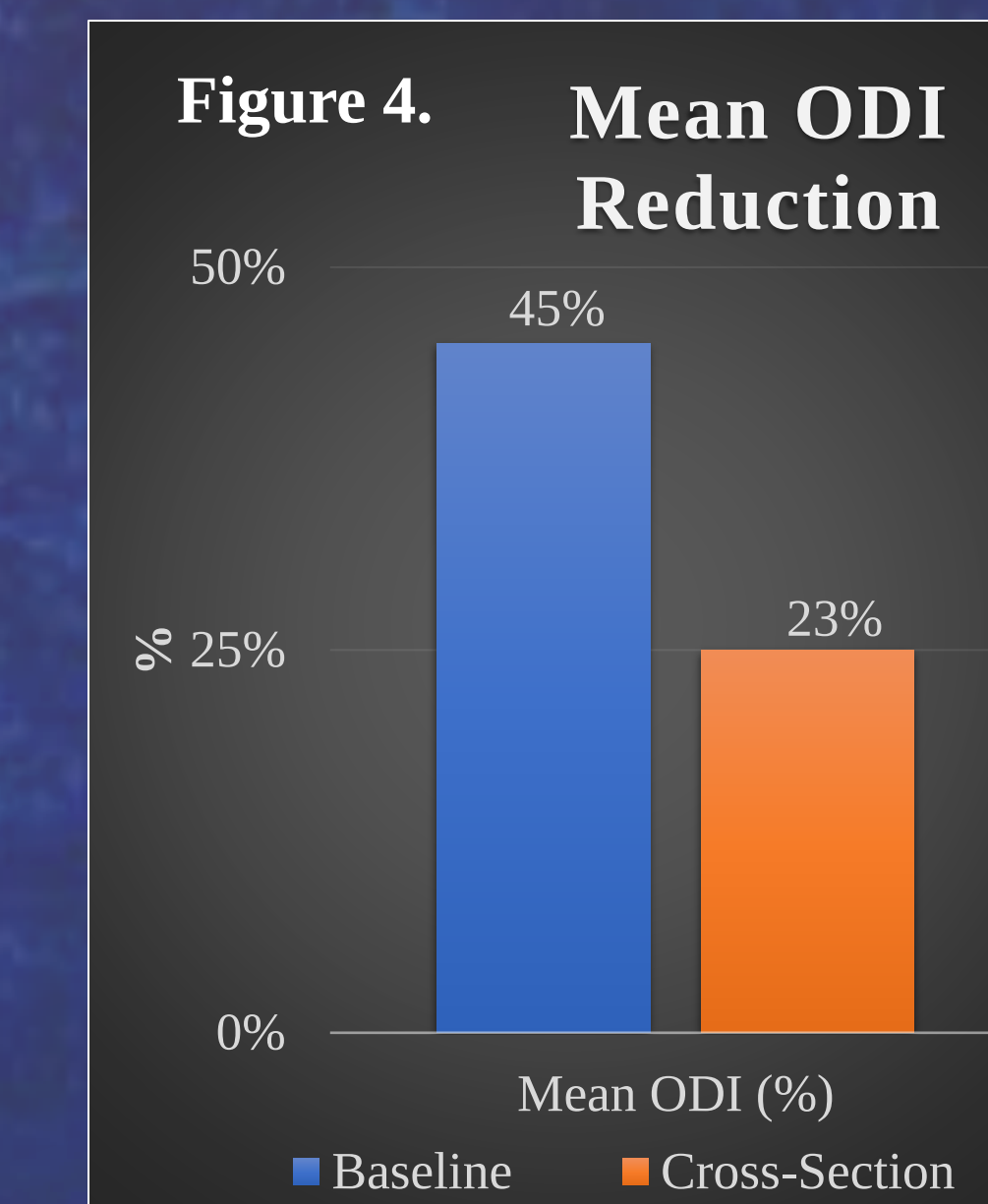
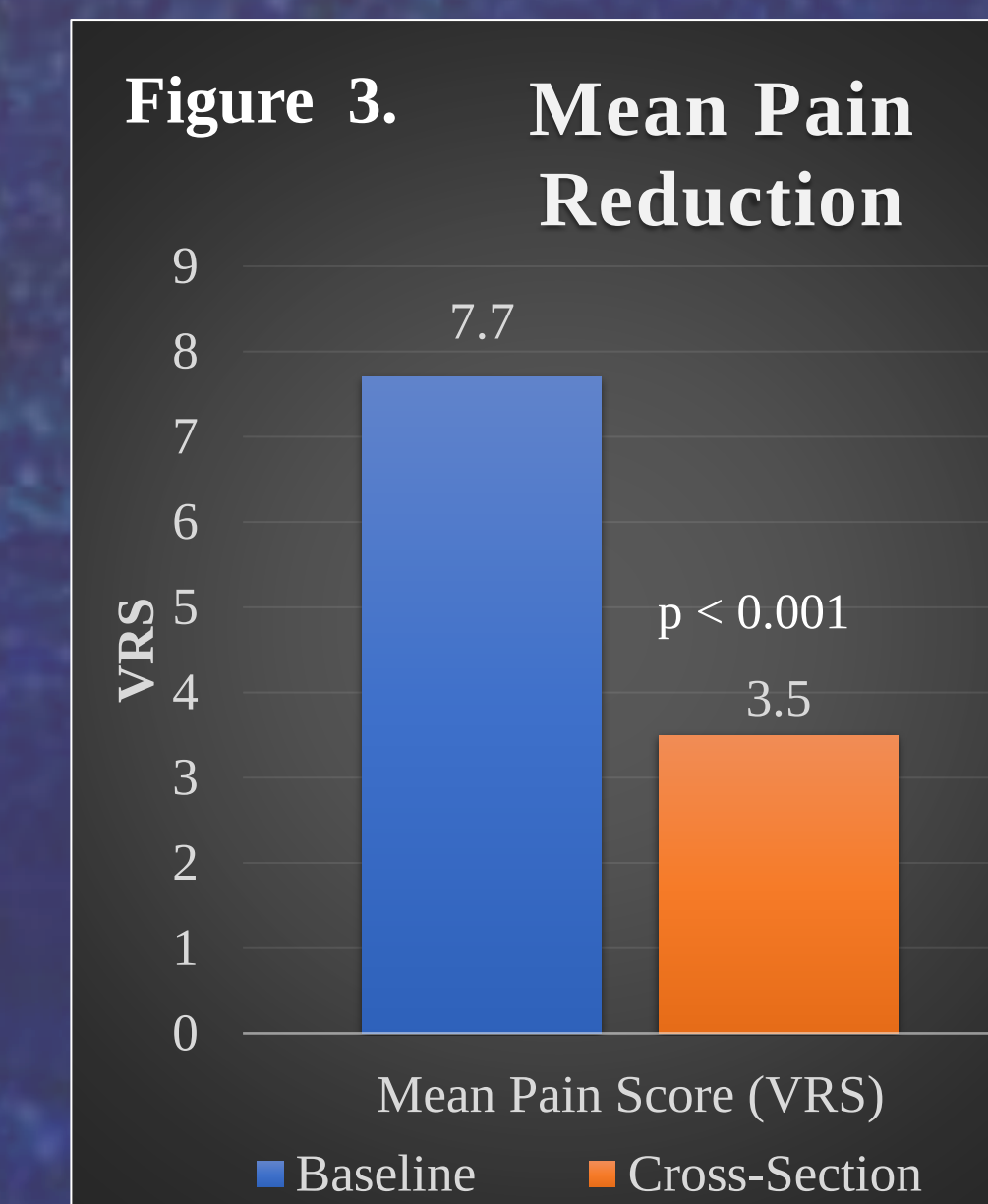
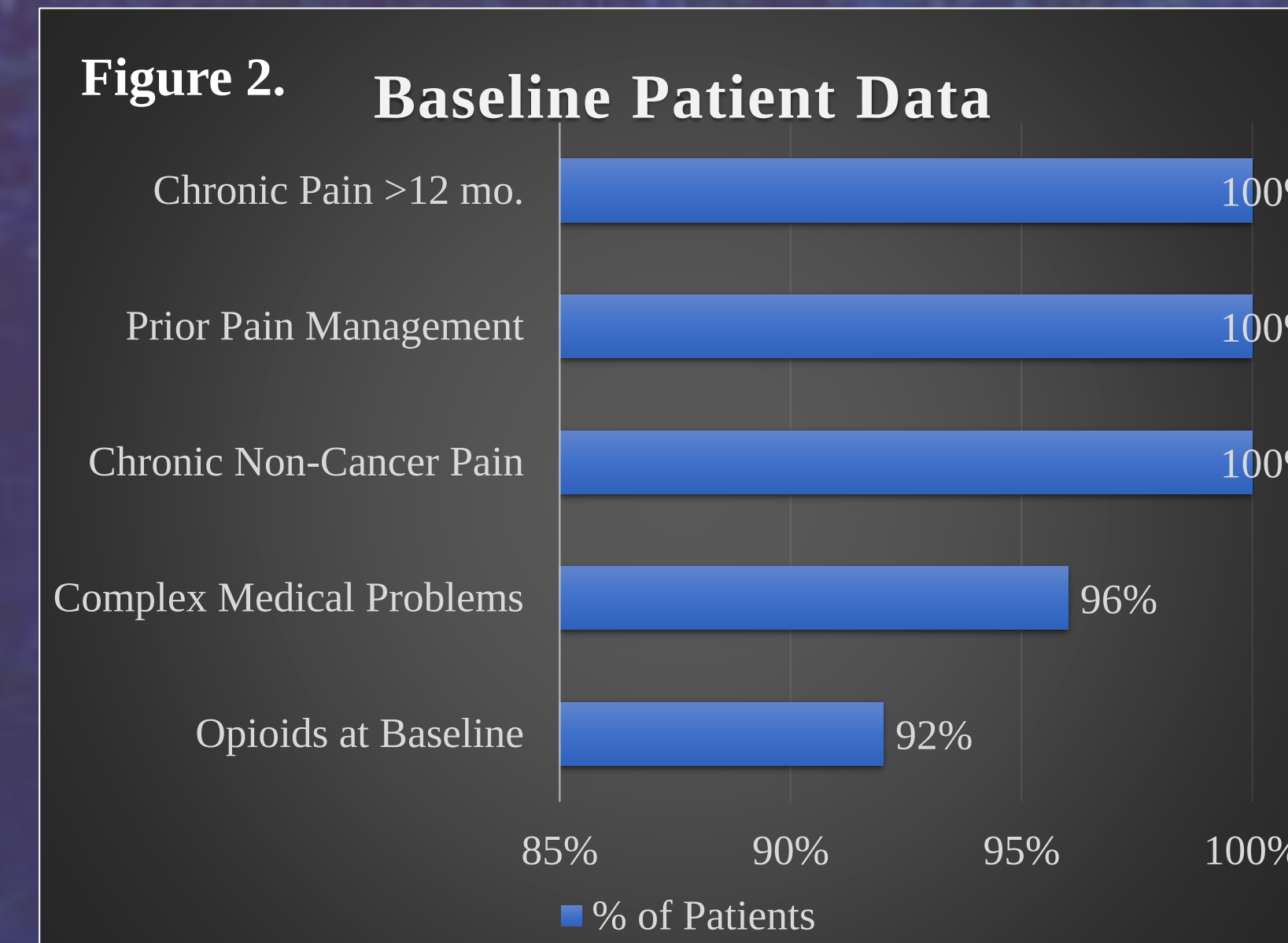


Table. 1 Secondary Outcomes	% of Patients
Patient Satisfaction	100%
Surgery Referral	0%
Hospitalization	0%
Procedure Complications	0%

The clinical global impression of change was 1.9, corresponding to “Much Improved”.

Conclusion

NeuroHealth involves an awareness of the far-reaching burdens of chronic pain on overall neurological health. The philosophy approaches patients with pain problems from the standpoint of utilizing resources to protect the brain, spine and nerves from harm. This challenges the pain physician to expand skillsets beyond traditional Interventional Pain Medicine to integrate neurodiagnostics, diagnostic ultrasound, vascular assessments, psychological screening, cognitive health optimization and opioid reduction strategies.

In the current study, **primary outcome measures** of sustained pain and disability reduction were met with statistical significance at a mean of 4 years of treatment. This trend parallels **secondary measures** including patient satisfaction, clinical global impression of change, opioid reduction and pain burden reduction.

It is possible to accomplish sustainable outcome measures in a **cost-effective** manner. While such care may add expense initially when compared to traditional pain management, the value obtained from *NeuroHealth* is substantially worth the cost. We have shown the **safety benefits** of avoiding unnecessary procedures and potential harm, and avoiding hospitalization and surgeries that are far more expensive to the health care economy.

We have found that when applied correctly, the **value-based care** delivered by utilizing a *NeuroHealth* approach leads to patient motivation, compliance and overall long-term cost-reduction. This model can be extrapolated to larger studies.