

Virtual Reality for Pain Management (2021- 2025)

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Introduction

Immersive Virtual Reality (VR) reduces pain and distress; effective across chronic, procedural, pediatric, and palliative settings.  
Mechanisms: distraction, relaxation, and behavioral skills training.

objective

Overview Virtual Reality technologies and its applications in Pain Management in recent years

methodology.

Embase search (2021–2025); 328 records → 29 included studies.  
Domains: chronic low back pain, fibromyalgia/MSK, phantom limb, sickle cell, pediatric burns, palliative. IRB waiver obtained from the University of Miami.

results

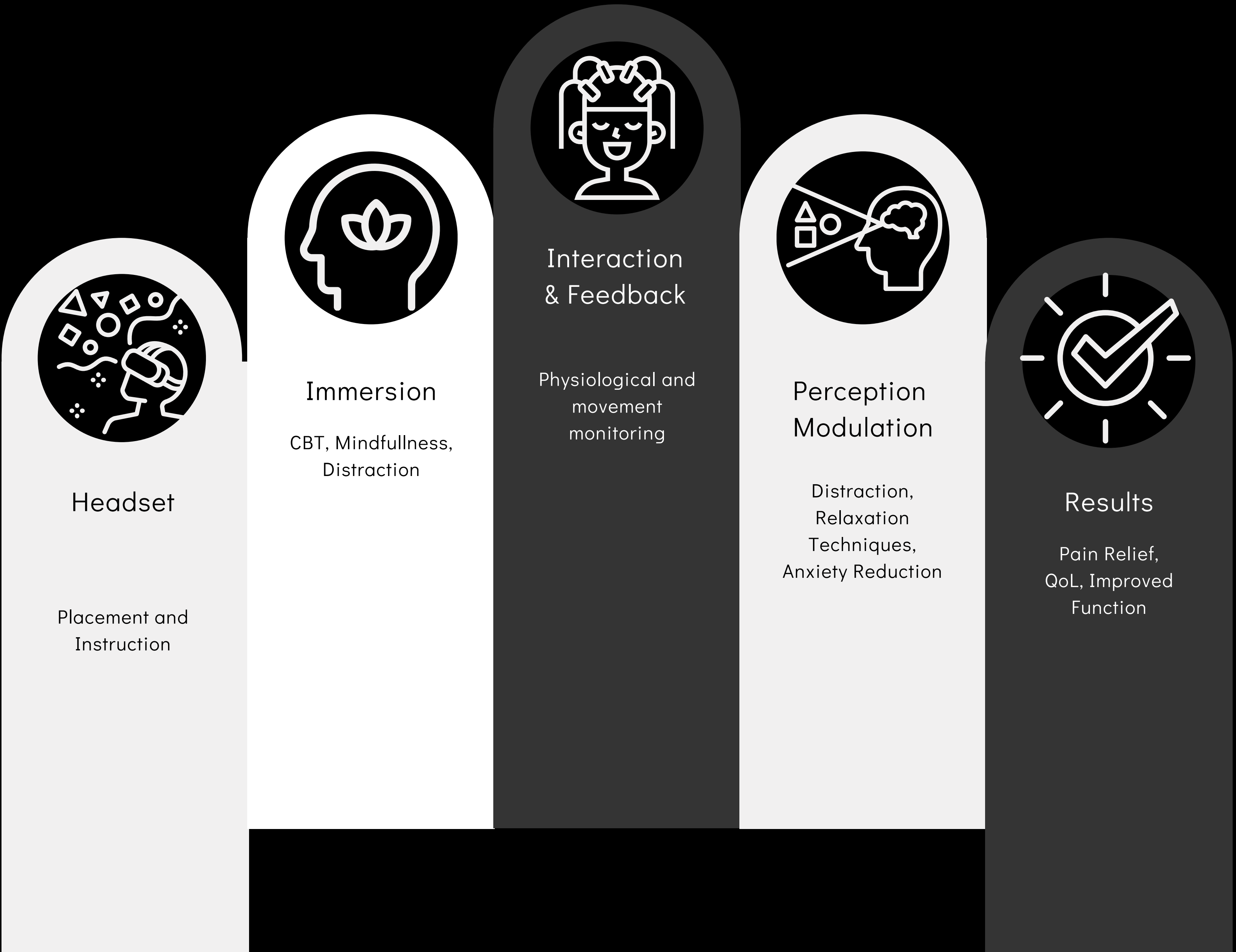
- Lower Back Pain: 8-week home VR program reduced pain/interference with effects to 24 months.
- Phantom limb: double-blind Randomized Control Trial –71% achieved ≥50% pain reduction.
- Burn dressing changes: VR decreased child and parent-reported pain; strongest for >30-min procedures.
- Sickle cell: home VR improved pain intensity, catastrophizing, and acceptance; dose-response pattern.
- Palliative care: reductions in pain, depression, dyspnea; high satisfaction.

conclusion

What are the best ways to use Virtual Reality for Pain Management? Use brief, repeatable sessions; tailor content to age and goals.  
Monitor for dizziness/nausea; provide seated option; schedule frequent breaks.

Virtual Reality technology reduces pain via immersive distraction and behavioral retraining.

How does Virtual Reality work for managing pain?



analysis

Table 1: VR applications summary

| Pain Type                           | Where it’s used (H   Clinic   Home) | Who (Peds   Adult) | FDA status    | Example Protocol           |
|-------------------------------------|-------------------------------------|--------------------|---------------|----------------------------|
| Pediatric needle pain               | ✓✓✓   ✓✓   –                        | ✓✓✓   –            | ✓ (ages 4–11) | PRN for medical procedure  |
| Chronic low-back pain, fibromyalgia | –   ✓   ✓✓✓                         | –   ✓✓✓            | ✓ (adults)    | 5–10 min daily × 6–8 weeks |
| Phantom limb pain                   | –   ✓✓   ✓                          | –   ✓✓             | –             | 20-30 mins repeatedly      |
| Sickle cell chronic pain            | –   ✓   ✓✓                          | ✓   ✓              | –             | 2-30 mins repeatedly       |
| Palliative symptoms                 | ✓✓   –   ✓                          | –   ✓              | –             | 10-20 mins as tolerated    |

Chart 1: what helps VR succeed



Chart 2: what limits VR adoption

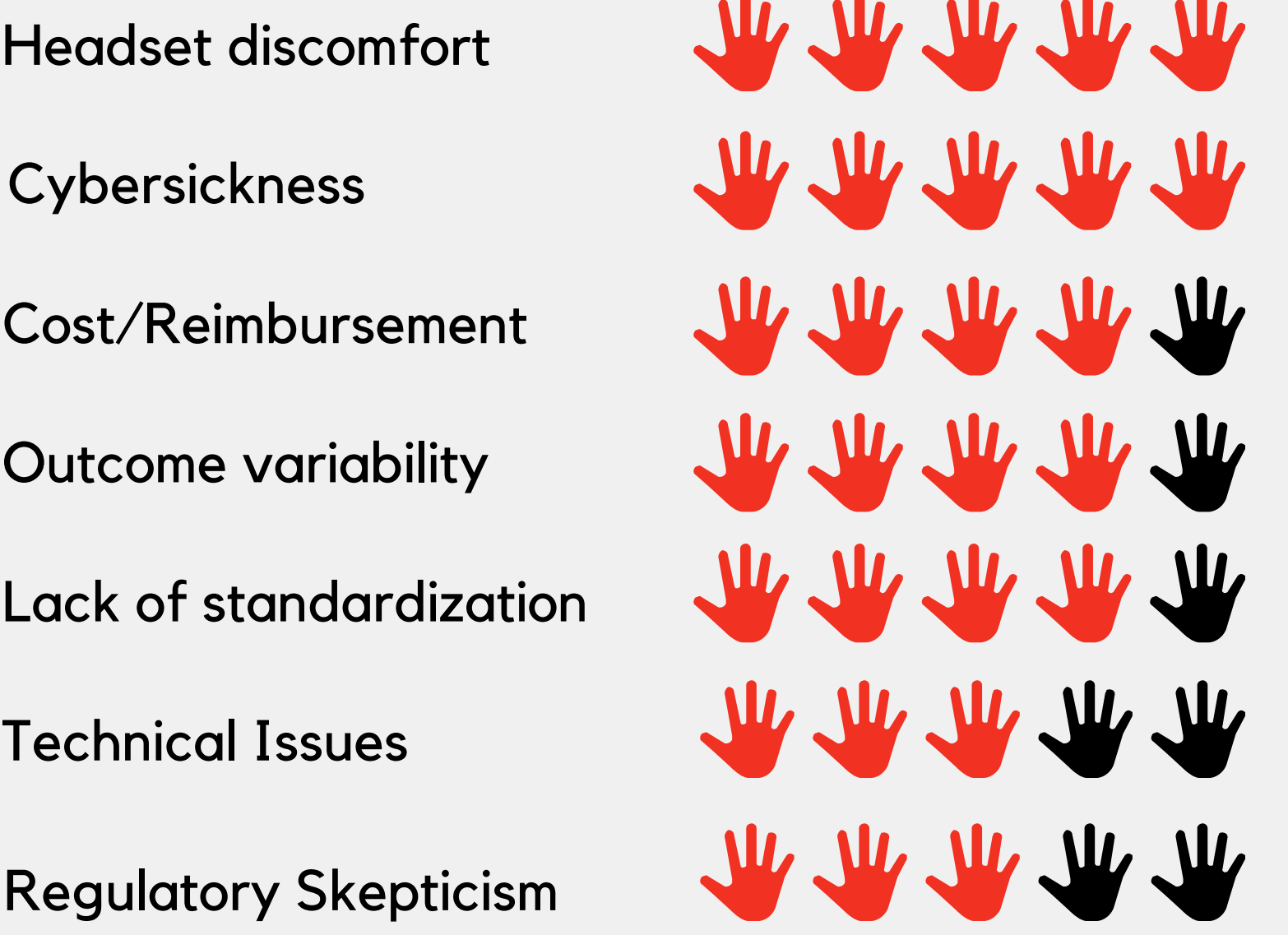


Chart 3: mentions of conditions where VR is applied accross studies included

