A RESEARCH-BACKED CASE STUDY

The Case for Aquariums in Waiting Rooms

How a living tank measurably lowers anxiety, improves mood, and reshapes how a wait feels.

PREPARED BY

Robert Deitz

Murfreesboro, TN

DATE

June 12, 2026

Executive Summary

Waiting rooms are, by design, places of friction. Patients and customers arrive anxious, bored, or impatient — and every additional minute spent waiting erodes their satisfaction with the visit. A live aquarium is one of the few interior features with **peer-reviewed clinical evidence** showing measurable benefits to the people occupying that space: lower heart rate, lower blood pressure, reduced anxiety, improved mood, and a more favorable overall perception of the environment.

This case study summarizes the scientific evidence, explains *why* aquariums work, and translates the findings into concrete business outcomes for the practices, offices, and venues that install them.

12%	21%	<5 min
reduction in pre-treatment anxiety[1]	increase in food intake among Alzheimer's patients[2]	to onset of physiological calming effect[3]

1. The Problem with Waiting Rooms

Wait time is one of the single largest drivers of customer and patient dissatisfaction:

- Customers who wait longer than expected report being **18% less satisfied** with their overall experience, and dissatisfaction climbs by as much as **262% when the delay feels unexplained**[4].
- Research published in BMC Health Services Research shows that a patient's "willingness to wait" is shaped not just by the actual clock time, but by the **perceived value of the visit and the perceived cost of the wait**[5].

In short: businesses cannot always shorten the wait, but they *can* change how the wait feels. That is exactly where an aquarium delivers its return.

2. What the Science Says

2.1 The Plymouth / Exeter Aquarium Study (2015)

The most rigorous evidence comes from a controlled experiment conducted by the National Marine Aquarium, Plymouth University, and the University of Exeter, published in *Environment & Behavior*. Researchers monitored participants' heart rate, blood pressure, and mood while they watched a 550,000-liter aquarium that was systematically stocked with progressively more fish over a four-week period[3,6].

Outcome	Result
Heart rate	Significant reduction
Blood pressure	Significant reduction
Mood	Significantly improved; happiness rose throughout exposure
Time to effect	Most physiological changes within the first 5 minutes
Dose-response	More fish (higher biodiversity) = greater calming effect

Dr. Deborah Cracknell, the lead author, observed:

> *"Fish tanks and displays are often associated with attempts at calming patients in doctors' surgeries and dental waiting rooms. This study has, for the first time, provided robust evidence that 'doses' of exposure to underwater settings could*

actually have a positive impact on people's wellbeing."[6]

2.2 Hospital Pre-Treatment Anxiety — Barker et al. (2015)

In a hospital treatment holding room, 60 patients were assigned either to a standard waiting room or one containing an aquarium. The aquarium condition produced a **12% reduction in self-reported anxiety** before treatment[1].

2.3 Systematic Review — Heart Rate Reduction Confirmed

A 2024 systematic review and meta-analysis of multiple aquarium-in-waiting-room studies (5 studies pooled) found a **statistically significant overall reduction in heart rate** when patients were exposed to aquariums, particularly after a 20-minute exposure window[1].

2.4 Dental Patient Trial — Lundberg & Srinivasan (2021)

A controlled clinical trial in a geriatric dental clinic compared three waiting-area conditions: no aquarium, an empty tank, and a fully-stocked aquarium. While this study did not find significant changes in measured blood pressure or anxiety scores, it produced one finding directly relevant to business owners: **patients rated the fully-stocked aquarium waiting area significantly higher than the other waiting rooms ($p < 0.001$)**[7].

In other words: even when physiological effects were modest, patients overwhelmingly *preferred* the room with the aquarium. That perception alone is a business asset.

2.5 Earlier Foundational Work

- **Katcher & Beck (1984)** — patients contemplating an aquarium before dental surgery experienced greater relaxation and reduced anxiety than controls[8].
- **Riddick (1985)** — installing an aquarium in the homes of non-institutionalized elderly adults produced a significant decrease in diastolic blood pressure versus control groups[8].
- **DeSchriver & Riddick (1990)** — aquarium observers in elderly care facilities showed decreased pulse rate, decreased muscle tension, and increased skin temperature — all indicators of a relaxation response[9].
- **Kidd & Kidd (1999)** — **70% of home aquarium owners** described their fish as calming and stress-reducing[8].

2.6 Alzheimer's and Memory Care — Edwards & Beck (Purdue)

In a study of 60 Alzheimer's patients across three Indiana nursing homes, researchers introduced aquariums into common areas and tracked behavior and eating patterns[2,10].

- Patients ate up to **21% more food** after aquariums were introduced (average increase of 17.2%).
- Significant decreases in wandering, pacing, yelling, and physical aggression.
- Aquariums held patients' attention for up to **30 minutes** — exceptional for this population.
- Initial findings suggested potential reductions in nutritional supplements and behavioral medications, with implied cost savings.

> *"I think the combination of movement, color and sound provides a stimulating experience for the patients," said lead researcher Nancy Edwards[2].*

3. Why Aquariums Work

The therapeutic effect appears to come from a combination of factors that no static decor element can replicate:

1. **Biophilia.** Humans have an innate affinity for natural, living systems. Unthreatening nature provides a "breather" from stress, lowering physiological arousal[8].

2. **Soft fascination.** Fish movement is novel enough to capture attention but not demanding — it occupies the mind without taxing it.

3. **Multi-sensory input.** Gentle motion, color, light refraction, and the low hum of water filtration combine into a calming sensory bundle.

4. **Dose-response.** The Plymouth study confirmed that **more biodiversity produces a larger effect** — a well-stocked, varied tank outperforms a sparse one[3].

4. Translating Science Into Business Outcomes

Benefit	Evidence	What it means for your practice
Lower pre-treatment anxiety	Plymouth 2015; Barker 2015 (12% reduction)	Calmer, more cooperative patients; smoother appointments; less staff de-escalation work
Reduced perceived wait time	Up to 30-min attention (Edwards/Purdue)	Same actual wait feels shorter; complaint volume drops
Stronger first impression	Lundberg 2021 ($p < 0.001$ preference)	Better online reviews; higher NPS; word-of-mouth referrals
Physiological calming	ScienceDirect meta-analysis 2024 (5 pooled studies)	Safer baseline for hypertensive, pediatric, or anxious patients
Premium brand signal	Differentiation; uncommon in competitor offices	Stands out in dental, medical, vet, legal, and financial-services markets

Special-population benefit	Edwards/Purdue (21% food intake increase)	Direct clinical value in memory care, geriatric, and long-term care settings

Ideal Venue Types

- **Dental and orthodontic offices** — pre-procedure anxiety is the dominant pain point
- **Pediatric practices** — children are the highest-engagement audience for fish
- **Medical specialty practices** (oncology, cardiology, OB/GYN) — high-anxiety visits
- **Veterinary clinics** — clients spend long waits in emotionally loaded states
- **Memory care and long-term care facilities** — direct clinical benefit documented
- **Hotels, restaurants, and corporate lobbies** — perceived-wait and brand-impression plays
- **Spas and wellness centers** — reinforces the therapeutic environment

5. Implementation Considerations

The research is clear that *not all aquariums perform equally*:

- **Bigger isn't always better, but stocked is.** A bare tank produces a fraction of the effect of a properly stocked one (Plymouth 2015).
- **Biodiversity matters.** More species and more fish = longer voluntary engagement and stronger physiological response.
- **Placement matters.** The tank should be visible from typical seating with a clear sightline — patients should be able to engage with it passively.
- **Maintenance is non-negotiable.** A dirty or poorly-maintained tank reverses the brand-impression benefit. Professional servicing is essential.
- **Lighting and sound design** of the surrounding room amplify or undercut the calming effect.

This is where a turnkey provider — design, installation, livestock selection, and recurring maintenance — protects the investment.

6. Conclusion

The peer-reviewed evidence is consistent across four decades of research: a properly designed, well-stocked aquarium in a waiting area produces measurable reductions in heart rate, blood pressure, and anxiety for the people occupying that space, and is consistently preferred over rooms without one. For waiting-room operators — from dental offices to memory care facilities to corporate lobbies — that translates into calmer patients, better reviews, stronger differentiation, and, in clinical settings, documented health benefits.

> *An aquarium is not decor. It is a clinically supported environmental intervention that happens to be beautiful.*

References

1. ScienceDirect (2024). *Effect of waiting room ambience on the stress and anxiety of patients — Systematic review & meta-analysis.* https://www.sciencedirect.com/science/article/pii/S2212958824000375

2. Edwards, N. & Beck, A. (Purdue University, 1999). *Study: Aquariums may pacify Alzheimer's patients.* https://www.purdue.edu/uns/html4ever/1999/990628.Edwards.fish.html

3. BBC News (2015). *Aquariums "deliver significant health benefits."* https://www.bbc.com/news/science-environment-33716589

4. Wavetec. *Wait Time Management System: Improving Customer Satisfaction.* https://www.wavetec.com/blog/wait-time-management-system/

5. BMC Health Services Research (2019). *The psychology of the wait time experience.* https://pmc.ncbi.nlm.nih.gov/articles/PMC6615172/

6. European Centre for Environment & Human Health (2015). *New study finds aquariums deliver health benefits.* https://www.ecehh.org/news/wellbeing-aquariums/

7. Lundberg, A. & Srinivasan, M. (2021). *Effect of the presence of an aquarium in the waiting area on the stress, anxiety and mood of adult dental patients: A controlled clinical trial.* PLOS ONE 16(10): e0258118. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0258118

8. Aquarium Industries. *Marine Biota and Psychological Well-Being* — review compiling Katcher (1984), Riddick (1985), Kidd & Kidd (1999), and others. aquariumindustries.com.au/wp-content/uploads/2015/08/Benefits-of-Aquariums.pdf

9. Reef Tectonics. *The Benefits of Aquariums in Long-Term Care Facilities* — citing Beck & Katcher (1981), Riddick (1985), DeSchriver & Riddick (1990). reeftectonics.com/PDF/Elderly&Aquariums.pdf

10. Purdue University College of Veterinary Medicine. *Animals Help the Alzheimer's Disease Patient.* https://vet.purdue.edu/chab/research/animals-help-the-alzheimers-disease-patient.php