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Music to Reduce Anxiety During Dental Appointments: A Randomized Controlled Study

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Take-home message Patients who listened to music during their dental appointment rated it as far more helpful than headphones alone (p = .002) and showed the largest reduction in anxiety on every measure. Music is a safe, inexpensive adjunct that patients clearly value.

BACKGROUND

Dental anxiety drives avoidance of care and worse oral health. Music is a simple, inexpensive way to lower stress and arousal, but in dentistry it is unclear whether the benefit comes from the music itself or from blocking the sounds of the operatory.

OBJECTIVES

1. Does music reduce anxiety during routine dental appointments?
2. Is the effect due to the music itself or to ambient-noise suppression?

METHODS

- **Design.** Three-arm randomised controlled study in real clinical practice.
- **Participants.** 107 adults screened → 76 randomised by draw → 0 dropouts.
- **Groups.** GAM : noise-cancelling headphones + classical/baroque music (n = 24) · GAS : same headphones, no music (n = 29) · GC : usual care (n = 23).
- **Measures, before and after the appointment.** MDAS (dental anxiety), STAI-Y1 (state anxiety), VAS-Anxiety (0–100 mm). Headphone groups also rated the perceived influence of the intervention (VAS-I, 0–100 mm).
- **Analysis.** Repeated-measures MANOVA (time × group); Mann–Whitney U for VAS-I; α = .05.

CONCLUSIONS AND CLINICAL RELEVANCE

- Music was accompanied by a significant reduction in anxiety over the appointment; the largest of the three conditions and clearly the most valued by patients; although it did not demonstrate statistically significant superiority over the other conditions.
- Patients prefer it: music was rated about 30 times more influential on their anxiety than headphones alone.
- A feasible, safe and inexpensive adjunct: no adverse events, no interference with treatment.
- Start the music before the procedure, at a safe volume, keep communication open and let the patient stop at any time.

RESULTS

76 participants (mean age 47.8 ± 17.8 years, 51% women); groups comparable in age, sex and baseline anxiety.

61.5 vs 2.0
Patients rated the influence of music on their anxiety far above that of headphones alone (VAS-I medians, 0–100 mm; U = 181.0, Z = −3.04, p = .002).

3 / 3
Largest decrease in the music group on all three measures: STAI-Y1 −6.3 · MDAS −1.7 · VAS-A −14.9 mm (time × group p = .357).

p < .001
Anxiety decreased from before to after the appointment in every group and on every measure ($\eta^2 p$ = .36). No adverse events.

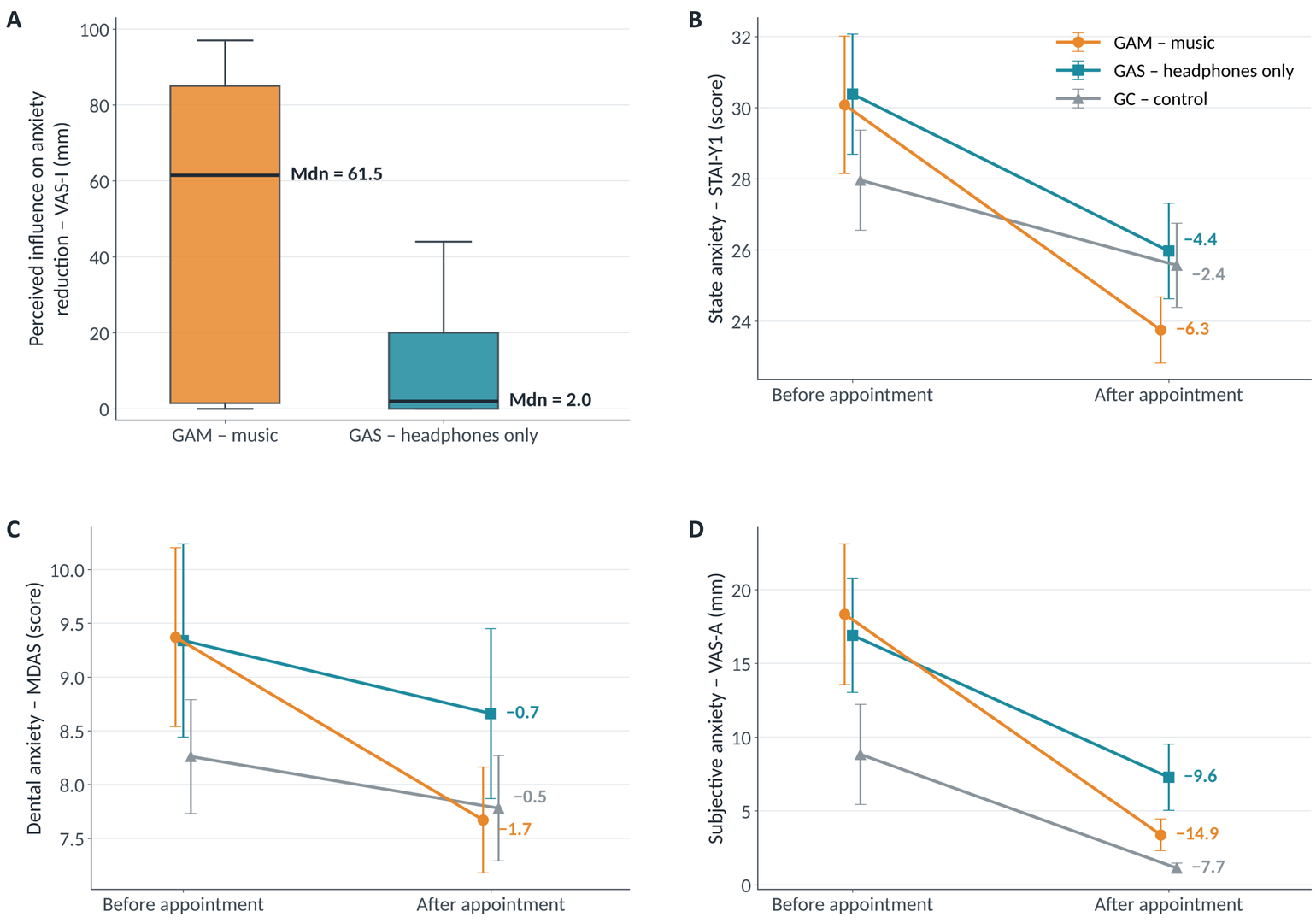

Figure 1. (A) Perceived influence of the intervention on anxiety reduction (VAS-I): music was rated far above headphones alone; boxes = interquartile range, line = median, whiskers = range (one extreme value in GAS not displayed). (B–D) Mean (± SE) anxiety before and after the appointment, by group: state anxiety (STAI-Y1), dental anxiety (MDAS) and subjective anxiety (VAS-A); numbers show the mean decrease in each group.

Measure	Time	GAM – music (n = 24)	GAS – headphones (n = 29)	GC – control (n = 23)
STAI-Y1	Before	30.08 (9.47)	30.38 (9.09)	27.96 (6.74)
	After	**23.75 (4.56)**	25.97 (7.23)	25.57 (5.66)
MDAS	Before	9.37 (4.08)	9.34 (4.84)	8.26 (2.54)
	After	**7.67 (2.41)**	8.66 (4.26)	7.78 (2.35)
VAS-A (mm)	Before	18.33 (23.35)	16.90 (20.82)	8.83 (16.25)
	After	**3.38 (5.31)**	7.28 (12.11)	1.13 (1.58)

Table 1. Anxiety scores, M (SD), before and after the appointment, by group. Post-appointment scores of the music group in orange.

WHAT PATIENTS TOLD US, AND WHAT IT MEANS FOR THE CLINIC

- Patients recognised music as something done for their wellbeing and credited it with calming them; the same headphones without music were not perceived as an intervention at all.
- Subjective and measured data point the same way: the music group showed the steepest decline on every anxiety measure, over and above the noise suppression shared by both headphone groups.
- Music was feasible in routine practice, safe (no adverse events) and did not interfere with treatment. A low-cost way to make the appointment a better experience and support willingness to return.