

# MUSIC INTERVENTIONS AND AROMATHERAPY AS STRATEGIES TO REDUCE PREOPERATIVE ANXIETY: AN UMBRELLA REVIEW

## Background

Preoperative anxiety (PA) is pervasive among patients awaiting surgical procedures, associated with increased risks for postoperative complications [1,2]. Music interventions and aromatherapy are promising strategies to reduce the risk for PA [3,4]. Notably, these strategies are easily implementable even in busy clinical settings. Since several related systematic reviews (SRs) have already been published, it is our objective to give an overview of the available evidence.

## Aim(s)

To conduct an umbrella review of SRs studying the evidence about music interventions or aromatherapy in reducing PA among adult patients.

## Methods

We retrieved MEDLINE via PubMed, EMBASE, CINAHL, and Cochrane Library from inception until September 8<sup>th</sup>, 2022, to identify SRs assessing the effects of music interventions or aromatherapy on PA in adult surgical patients. Primary outcome was the efficacy of music interventions and aromatherapy in reducing PA levels. The details of music interventions and aromatherapy implementation (intervention content, delivery methods, etc.) were also summarized. We assessed the quality of included SRs using the MeaSurement Tool to Assess Systematic Reviews checklist (AMSTAR 2). This umbrella review was registered in PROSPERO.

## Results

Eight eligible SRs (67 primary studies) were included, with four SRs for music interventions (1 high quality, 2 moderate, and 1 low), three for aromatherapy (all low quality) and one for both (moderate quality). The reporting of intervention content and implementation process was unsatisfactory, with numerous key messages missing. The pooled results on reducing PA using music interventions or aromatherapy were statistically significant (MD=-4.53, 95%CI (-5.83, -3.23), I<sup>2</sup>=58%; MD=-7.70, 95%CI (-13.02, -2.39), I<sup>2</sup>=98%, respectively). Subgroup analyses found that music interventions had greater effects when the duration of intervention was 20 minutes or longer (subgroup differences  $p < 0.01$ ) and in patients younger than 60 years of age (subgroup differences  $p = 0.02$ ); the effects of aromatherapy were not statistically significant when using rose oil and when administered to patients undergoing cardiac surgery (both subgroup differences  $p < 0.01$ ).

## Discussion

Meta-analyses indicated that both music interventions and aromatherapy may have a beneficial effect on reducing PA levels, but the results need to be interpreted with caution due to the high level of heterogeneity observed and the poor reporting and methodological quality of the included trials. In addition, the limited number of studies and small sample sizes in subgroup analyses may increase the possibility of finding positive results by chance alone.

## Implications and future perspectives

To enhance the application of music interventions and aromatherapy in clinical settings and tailor them to patients awaiting surgery, more rigorous direct comparative studies are needed addressing the individual components of the interventions, especially regarding different elements of music (e.g., musical genre, tempo) or essential oil (e.g., essential oil types, concentration) and different delivery methods (e.g., frequency, duration).

## References

1. Abate SM et al, 25:6-16, 2020.
2. Stamenkovic DM et al, 84:1307-1317, 2018.

3. Brade J et al, 6:Cd006908, 2013
4. Huang HF et al, 44: 101302, 2021.