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Introduction

Hospitalized children undergo medical and nursing procedures that cause pain, anxiety and fear. Vascular access devices (VADs) are of paramount importance for critically ill patients in different clinical settings (emergency, intensive care, operating room) and for different purposes (infusion of fluids or medications, parenteral nutrition and hemodynamic monitoring). Sedation is not always necessary during the VAD procedure, so non-pharmacological measures such as immersive virtual reality and music, combined with pharmacological ones such as local anesthetics (Enla®) and anesthetic buttons, are of great value in distracting children and reducing fear, pain and anxiety during venipuncture.

Methods

To compare the use of Immersive Virtual Reality (IVR) and music as non-pharmacological interventions to avoid/decrease pain and anxiety in children during venipuncture.

Objective

Systematic review of effect conducted according to the methodology of the Joanna Briggs Institute. The review protocol was registered in **PROSPERO** number **CRD4202345798**.

Results

A broad search of 9 databases. A total of 666 children, ranging in age from 4 to 17 years, published studies from North America, Europe and Asia. The combined analysis of 10 studies to evaluate the effect of IVR on pain reduction the result was in favor of the intervention compared to the control (SMD -0.43; CI 95 % -0.8 - 0.06 N= 429 I2 = 85 %) figure1. The funnel plot shows the publication bias of the studies included in the meta-analysis figure 3, and a summary of the risk of bias assessment using the RoB2 scale figure 2.

Figura 1. Combined analysis of 10 studies to evaluate the effect of IVR in reducing pain in children undergoing venipuncture. Brazil, 2024

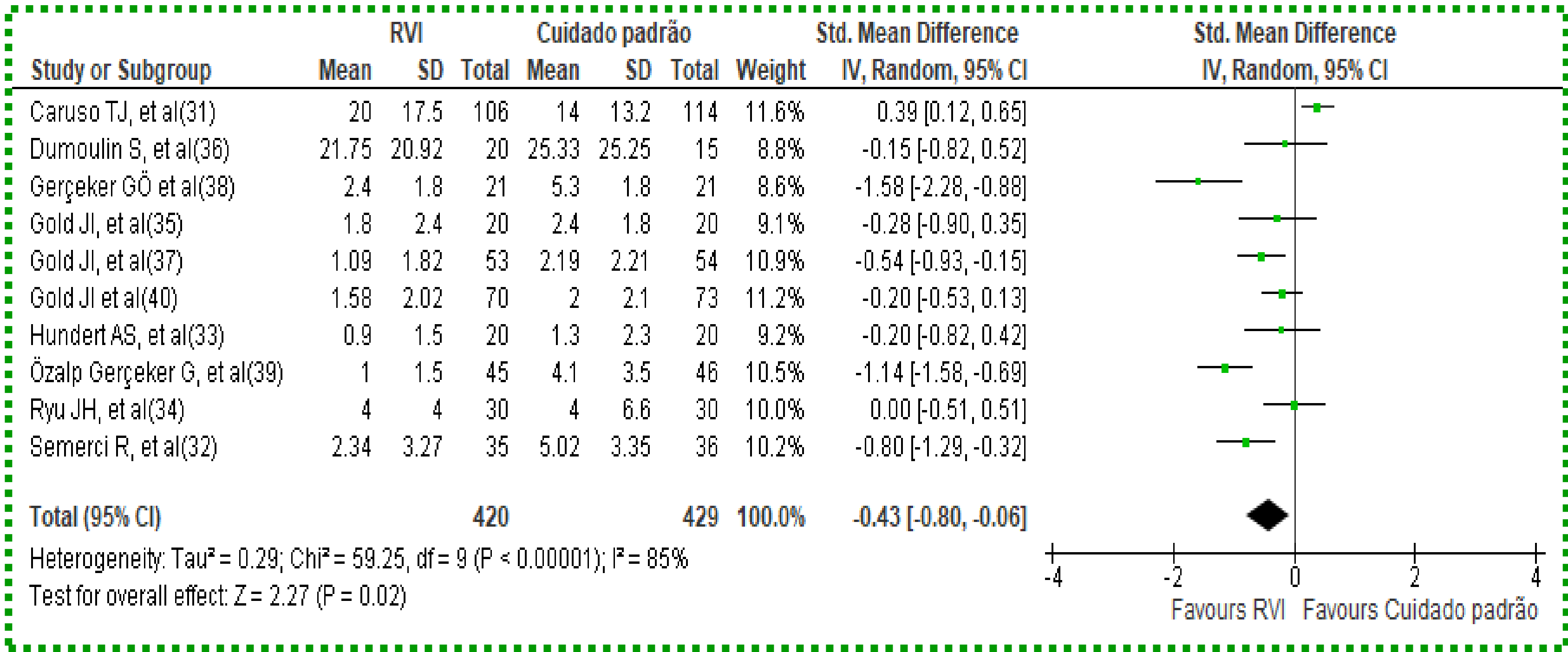


Figura 3. Funnel plot of the studies included in the review. Brazil, 2024

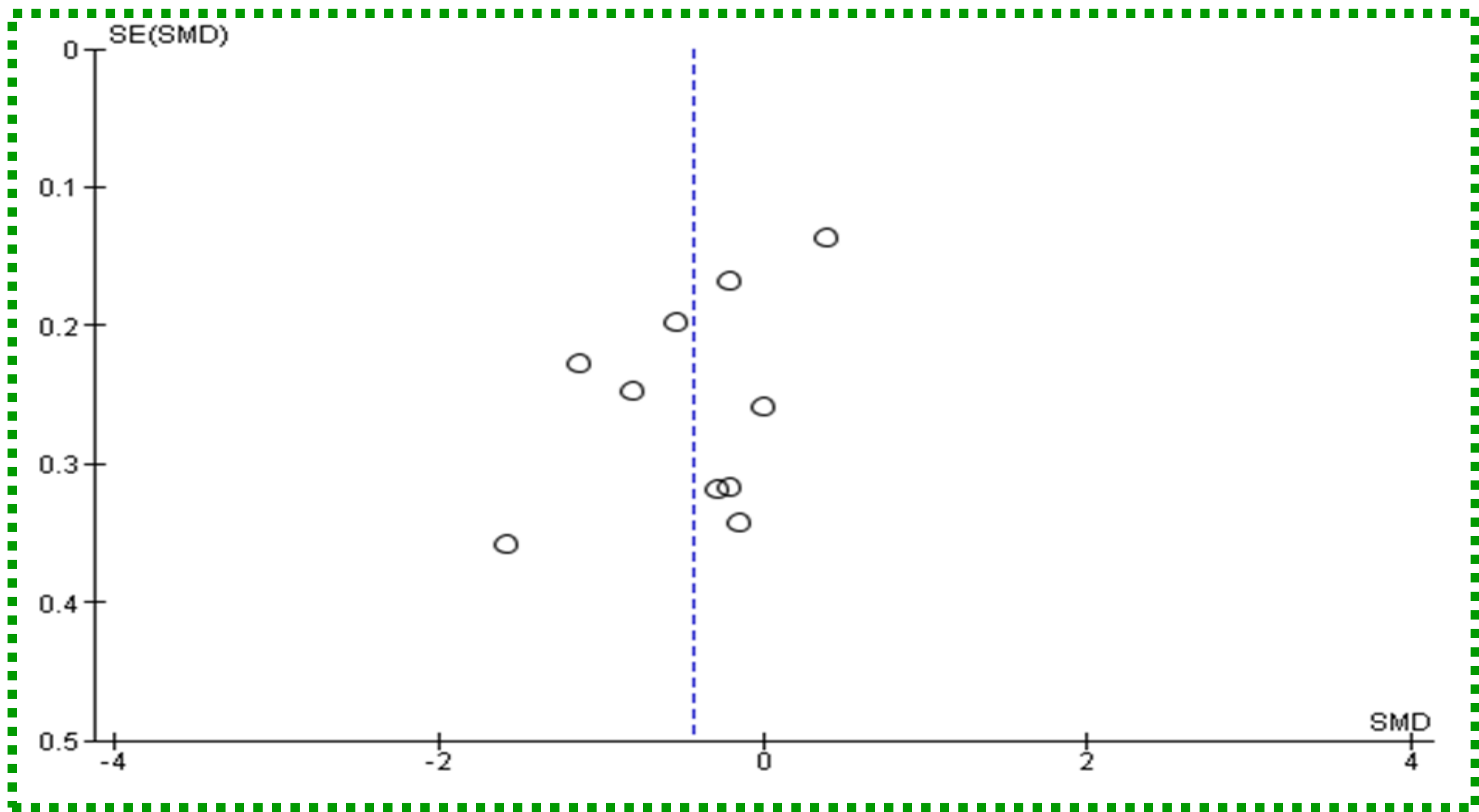
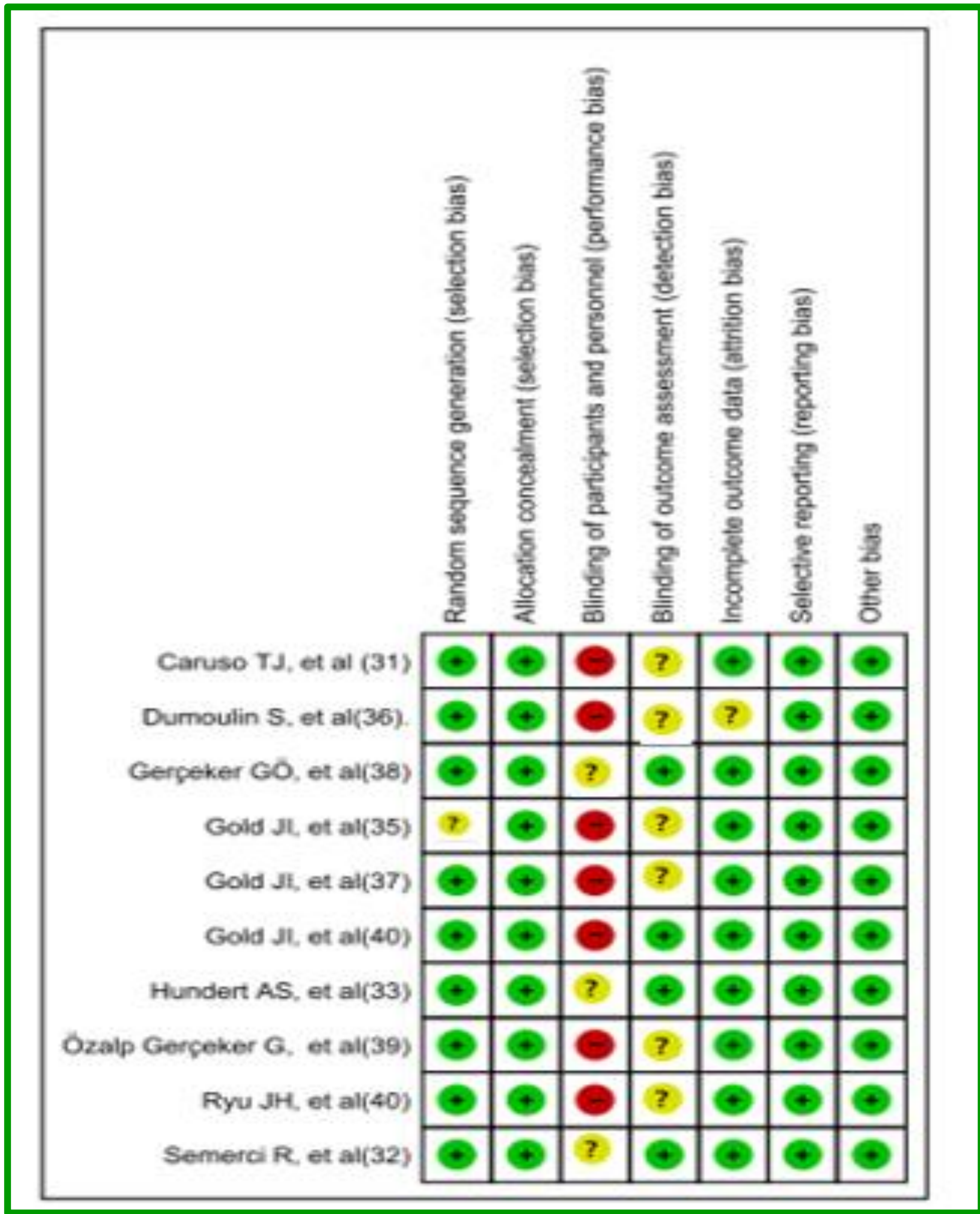


Figura 2. Summary of the risk of bias of the studies included in the review. Brazil, 2024



Conclusion

Both IVR and music combined with pharmacological interventions can help reduce children's pain, fear and anxiety during venipuncture.

