Effects of music interventions for adult patients undergoing colonoscopy: A meta-analysis of randomized controlled studies

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Introduction
Music interventions have been used to reduce anxiety and pain associated with colonoscopy. However, no conclusion has yet been reached about its effectiveness on patients receiving elective colonoscopy.

Objectives
To assess the effects of music interventions on psychological and physiological outcomes in adult patients undergoing colonoscopy.

Methodology
Randomized controlled trials that compared music interventions with standard care for adult patients with elective colonoscopy were included. A total of 32 English and Chinese databases were searched using English and Chinese keywords. Hand searching of journals and reference lists were conducted. Two reviewers extracted data and assessed methodological quality independently, and additional information from the trial researchers was sought when necessary. Results were presented by mean differences (MD) and standardized mean differences (SMD). Heterogeneity was assessed by calculating the I^2 measure of inconsistency. Pooled estimates were calculated using the fixed-effect model unless there was significant heterogeneity (I^2 > 50%), in which case the random-effects model was used. 95% confidence intervals (CI) were calculated for each effect size estimate.

Result
The initial search identified 10,448 articles. Ten articles were of appropriate quality for
inclusion. The results showed a statistically significant reduction of pain after music listening (SMD -0.77, 95%CI -1.25 to -0.29, P = 0.002). Besides, music listening had a significant effect on reduction of heart rate (MD -7.85, 95% CI -10.41 to -5.29, P<0.00001) and diastolic blood pressure (MD -5.59, 95% CI -10.13 to -1.06, P=0.02). Nevertheless, music listening did not significantly reduce anxiety, the needs of sedation and analgesic. The systolic blood pressure was not improved. Similar non-significant finding was also found with regard to procedure satisfaction. Conclusion The present study shows a statistically significant beneficial effect of music interventions on reducing participants’ pain, heart rate and diastolic blood pressure. Thus, it is recommended that music listening could be offered to patients during colonoscopy. In order to facilitate music play, the propaganda posters of broadcast music could be posted on a noticeable place, and the playlists could be offered to patients at the counter of the colonoscopy unit. Besides, a portable music player could be placed at each cubicle for patient use.