MUSIC'S EFFECT ON COGNITIVE FUNCTIONING

Active music-making has a small, statistically significant effect on cognitive functioning, $SMD = 0.30$, $p = 0.004$.

The music activities of Re-Creating Music by Singing/Playing Instruments or Improvisation were used in all studies.

IMPLICATIONS OF RESEARCH:
Active music-making is a safe, enjoyable activity that has the potential to support the lives of millions of older adults facing cognitive decline.

METHODS

ACKNOWLEDGEMENTS

BACKGROUND AND SIGNIFICANCE

- Dementia is a debilitating disease that can alter cognitive functioning for older adults.
- Supporting cognitive functioning is critical to help protect against cognitive decline and slow the progression of the disease.
- Music has shown potential to influence cognitive outcomes.
- Classification of music activities would clarify which activities may have caused the effects.

STUDY TYPE: Systematic review and meta-analysis.

INCLUSION CRITERIA: Published randomized controlled trials between 2010 and 2021.

PARTICIPANTS: Older adults with probable MCI, mild, or moderate dementia.

INTERVENTION: Active music-making, defined as physically participating in music.

OUTCOMES: Cognitive functioning.

APPRAISAL AND ANALYSIS

- Studies were critically appraised; studies with similar methodology were meta-analyzed with a random-effects model.
- Activities were categorized using the Reporting Guidelines for Music-based Interventions.

TAKE AWAY POINTS

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FUTURE DIRECTIONS

Programming looking to support these older adults should consider utilizing active music-making interventions that use the activities of:
- Singing and/or playing precomposed songs
- Creating music in the moment

LIMITATIONS

We were limited by incomplete data for reporting effect sizes on all studies.

REFERENCES


*Other references available upon request.

STUDY QUESTIONS:

What are the effects of active music-making interventions compared to controls on cognitive functioning for older adults with probable MCI and mild or moderate dementia?

What specific music activities were used in each intervention?

META-ANALYSIS OF ACTIVE MUSIC-MAKING VS. CONTROLS FOR COGNITIVE FUNCTIONING:

- Basu 2018: $0.38 [-0.24, 1.00]$
- Giovagnoli 2018: $0.05 [-0.53, 0.63]$
- Giovagnoli-CT 2017: $-0.23 [-0.91, 0.44]$
- Kim 2016: $0.04 [-0.14, 1.14]$
- Kim 2020: $0.05 [-0.25, 1.65]$
- Luu-Mild 2018: $0.01 [-0.48, 0.50]$
- Luu-MOD 2018: $0.02 [-0.46, 0.49]$
- Pengon 2017: $0.42 [-0.08, 0.91]$
- Ragio 2010: $0.44 [-0.41, 1.37]$
- Särkämö 2014: $0.50 [-0.02, 1.02]$

Total (95% CI): $0.30 [0.10, 0.51]$

Heterogeneity: $I^2 = 63.12; I^2 = 11.82; df = 9 (P = 0.22); I^2 = 24%$

Test for overall effect: Z = 2.87 (P = 0.004)

Favours [control] Favours [intervention]

-1 -0.5 0 0.5 1

Active music-making has a small but statistically significant effect on cognitive functioning for older adults with probable MCI, mild, or moderate dementia.