Effects of familiar music exposure on deliberate retrieval of remote episodic and semantic memories in healthy aging adults

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Introduction

• Familiar music can evoke spontaneous autobiographical memory recall in both healthy adults & dementia patients1-3
• Unclear whether familiar music differentially impacts episodic vs. semantic recall4
• Unknown whether familiar music can enhance deliberate recall

Primary Question:
What effect does familiar music, relative to unfamiliar music, have on deliberate retrieval of episodic or semantic autobiographical memories in healthy aging adults?

Music & Memory Prompt Selection

<table>
<thead>
<tr>
<th>Familiar Music</th>
<th>Unfamiliar Music</th>
<th>No Music</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant-specific songs from 1946-1983 US Billboard Hot 100 charts by artists participants indicate they listened to most before age 25</td>
<td>Traffic and weather reports, instructional videos selected to be neutral in valence and not suggestive of a particular time period with familiar clips</td>
<td>Preselection of prompts should reduce the likelihood that familiar clips will be reported as being familiar</td>
</tr>
</tbody>
</table>

Memory Prompts:
Ex. “A friend’s birthday party in elementary school”

Participants

• Target N = 75
• All sessions will be conducted via videocalls (Zoom)
• Inclusion criteria: Age 65-80 years, fluency in English, no reported neurological conditions or hearing impairments, access to a computer & private space, memory for sufficient early-life events and musical artists, T-MoCA score >=16

Music & Autobiographical Interview Sessions

<table>
<thead>
<tr>
<th>Session 1: Familiar Music</th>
<th>Session 2: Unfamiliar Music</th>
<th>Session 3: No Music</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least one week between sessions</td>
<td>Session order counterbalanced across participants</td>
<td>15 trials/session (45 total trials)</td>
</tr>
</tbody>
</table>

Example Session

Block 1: Childhood
- 10s audio clip, emotion rating
- Prompt: birthday
- Memory trial: 4/mind |

Block 2: Adolescence
- 10s audio clip, emotion rating
- Prompt: graduation
- Memory trial: 4/mind |

Block 3: Early Adulthood
- 10s audio clip, emotion rating
- Prompt: working
- Memory trial: 4/mind |

(Blocks order counterbalanced across participants)

60-90 minutes

Mean Details Recalled

<table>
<thead>
<tr>
<th>Internal Details</th>
<th>External Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.0</td>
<td>11.5</td>
</tr>
<tr>
<td>11.5</td>
<td>12.0</td>
</tr>
</tbody>
</table>

Predicted Results

Hypothesis 1: Exposure to familiar music, compared to unfamiliar music or no music, will promote retrieval of internal details, but not external details.

Hypothesis 2: Higher participant ratings of song familiarity will be associated with increases in the number of internal, but not external, details retrieved.

Future Directions

• Regardless of the results, this study should inform whether familiar music can enhance deliberate recall during healthy aging
• Findings may inform work on music-based therapies for both healthy aging individuals and patients with dementia

References


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https://github.com/pab2183