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# Evaluation of Interactive Rhythm Activities on the Engagement Level of Individuals with Memory Impairments

Jared Bomba  
*UVM Larner College of Medicine*

Raghav Goyal  
*UVM Larner College of Medicine*

Marc Hammond  
*UVM Larner College of Medicine*

Van Hoang  
*UVM Larner College of Medicine*

Alexander Karabachev  
*UVM Larner College of Medicine*

*See next page for additional authors*

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**Authors**

Jared Bomba, Raghav Goyal, Marc Hammond, Van Hoang, Alexander Karabachev, Laura Nelson, Hanaa Shihadeh, Judith Christensen, and Ellen Meagher

# Evaluation of Interactive Rhythm Activities on the Engagement Level of Individuals with Memory Impairments

Jared Bomba<sup>1</sup>, Raghav Goyal<sup>1</sup>, Marc Hammond<sup>1</sup>, Van Hoang<sup>1</sup>, Alexander Karabachev<sup>1</sup>, Laura Nelson<sup>1</sup>, Hanaa Shihadeh<sup>1</sup>, Judith Christensen, PhD<sup>1</sup>

1. Robert Larner College of Medicine, University of Vermont, Burlington, VT, United States.  
2. The Converse Home.

## Introduction

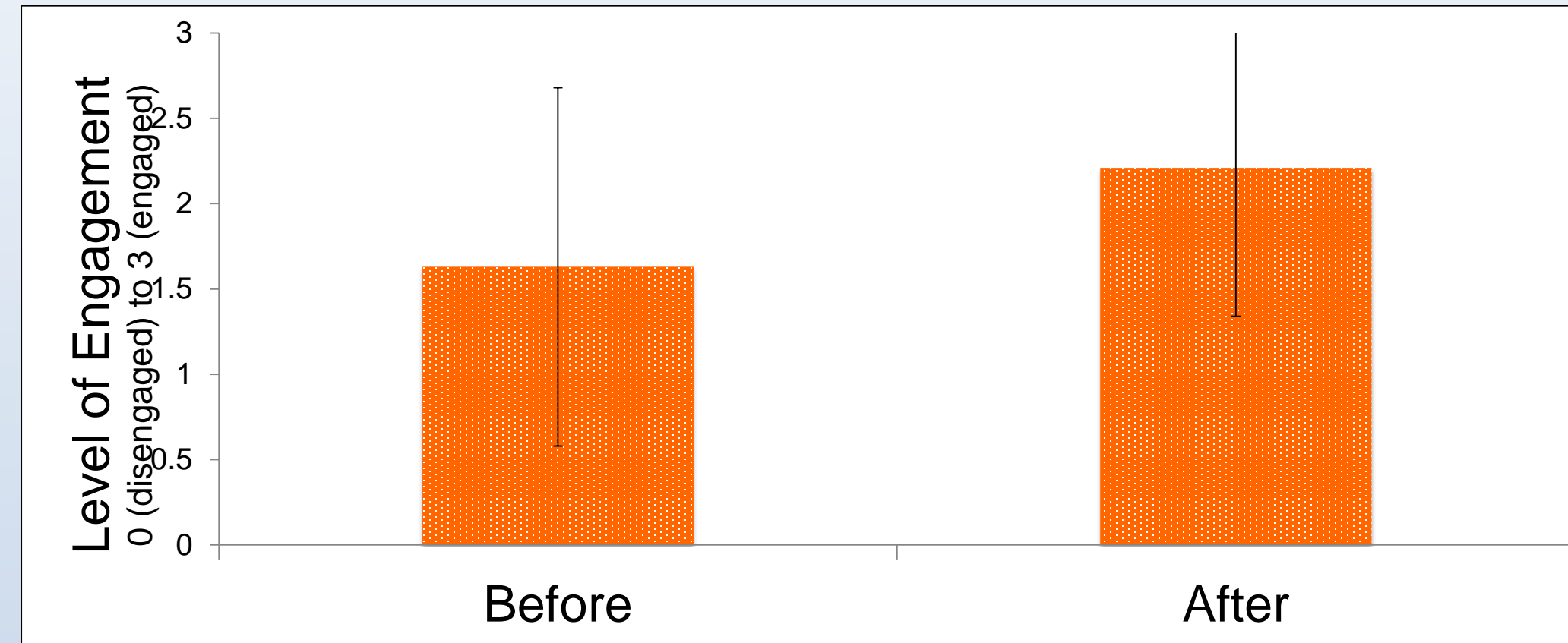
Alzheimer's dementia can lead to a decreased quality of life in patients through the manifestation of inappropriate behavioral and psychological signs and symptoms. Music therapy has been shown to decrease agitation and disruptive behaviors in patients with dementia, although improvement in overall cognitive function was minimal.(1, 2) However, there is evidence showing an increase in grey matter in those who actively participate in music activities. (3) Our goal in this study is to focus on how participation in rhythm-based activities affects quality of life.

## Methods

Observational data was collected from nine drumming sessions, composed of six sections: "Welcome Song", "Rhythm Sticks", "Egg Shakers", "Djembe Drum", "Singing Drum", and "Goodbye Song" and during "Pre-Drumming" and "Post-Drumming" periods.

- Scoring criteria for "level of engagement" using a scale from 0 (completely disengaged) to 3 (maximally engaged).
- Scores were averaged between observers for each subject to create one score per session.
- Residents were not given scores in sections for which they were not present.

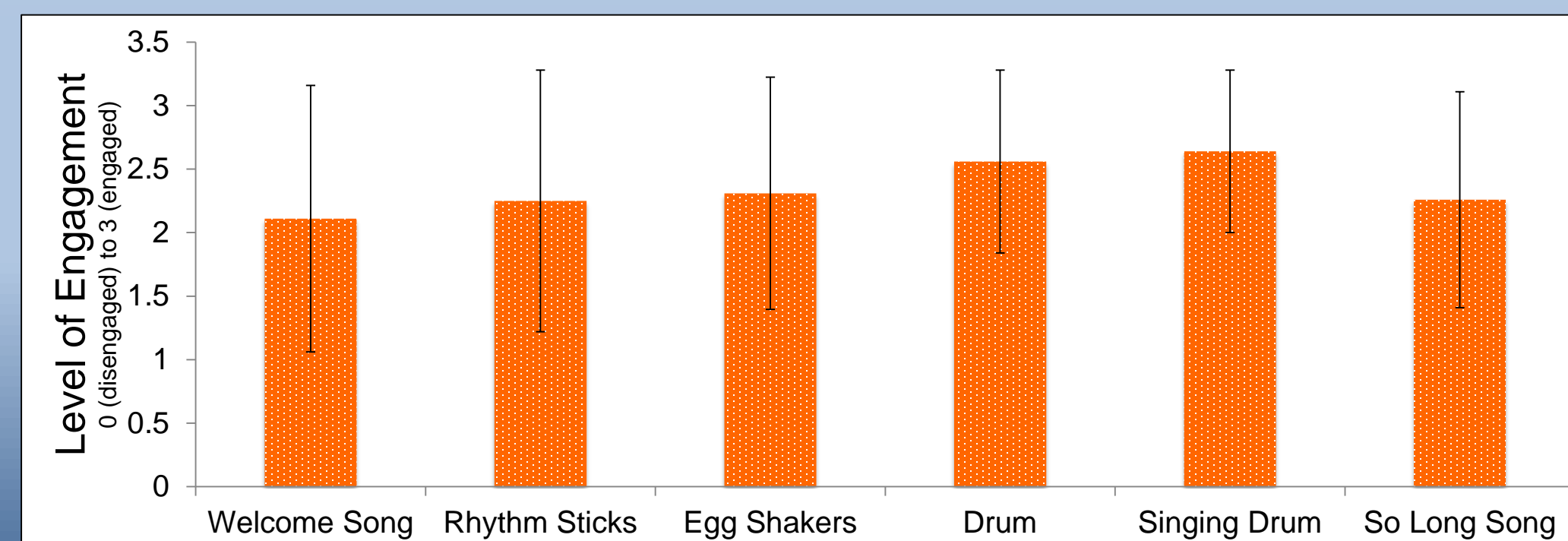
## Results



**Figure 1.** Residents before rhythm activities averaged  $1.64 \pm 1.05$  on a scale of 0-3. Residents after activities averaged  $2.2 \pm 0.88$ . There is a statistical improvement in engagement between before and after interactive rhythm activities ( $p$ -value<0.05)



**Figure 2.** Different tools used during the sessions. Singing drum, African drum, egg shakers, rhythm sticks (left to right). Representative images were collected from google images: "Vermont Singing Drum", "World Playground Djembe Drum", "Dunlop Eggshaker", "Basic Beat Combination Rhythm Sticks." (left to right)



**Figure 3.** All of the activities scored above 2 indicating that on average the residents participated in the session. The singing drum scored statistically higher than other activities ( $p$ <0.01).

## Conclusion

Direct face-to-face drum based activities such as one-on-one Djembe Drumming and playing with a Singing Drum demonstrated significantly higher levels of engagement than other forms of rhythm based drumming (rhythm sticks, egg shakers, welcome song, and so-long song), each of which showed no significant intra-group difference. Parity between forms of rhythm activity also suggests lack of significance in timing of the specific drumming activity, from start to finish of each session.

Small gestures like smiles, bobbing heads, or negative findings like anger and sleep, might be evidence of higher levels of engagement not reflected in our data collecting methodology.

Our subjective experience during data collections suggested the value of our being present, friendly, and excited in creating "disease-free moments" for the memory impaired.

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