



Using Sound Therapy To Ease Agitation Amongst Persons With Dementia

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What is Sound Therapy?

- **Tibetan singing bowls** sound in specific rhythmic patterns to create vibrational sound harmonics at a specific frequency.
- This sound impacts the sympathetic nervous system as brain waves synchronise to the vibrations of the bowls.
- Sound Healing is an effective and proven modality that uses **vibrational sound** to help **reduce stress, relieve pain**.
- Aids **depression, anxiety** and stimulates rest.
- Evidence that it helps with **Chronic pain, boosts memory** (early stages Alzheimer's), addresses blood pressure problems, boosts immune system.
- It is also noted as being capable of **altering consciousness** and creating a deep feel of peace, **well-being** and **better health**.



Background – The Cove

- The Cove is a 131 bed aged care facility situated in Mandurah Western Australia. It was purpose-built eight years ago and consists of seven houses.
- Three houses are dementia specific, supporting 50 residents, while most of the other high care houses also support residents who have dementia.
- The Cove has a dedicated team of 200 full, part time and casual staff including Nurse Practitioner, RN's, Allied Health professionals, Therapy Assistants, Carers, Volunteers, Housekeepers, Admin and Support staff.
- The Cove is also supported by specialist Corporate Services staff such as *The Brightwater Centre*.



How the study came about – addressing a need at The Cove

- Initial anecdotal from The Cove that there were difficulties in placing staff within two houses on site due to high levels of agitation related behaviour amongst residents having received a dementia high care needs assessment.
- RN who is a certified sound therapist began TSBT sessions in two houses for residents once per week.
- CDs were also left to be played in certain resident rooms at night and during the day for those who would not settle down to sleep.
- Anecdotal evidence showed that this helped somewhat to ease agitation amongst some residents.



Introduction of Tibetan Bowl Sound Therapy at The Cove

- In 2012 a Quality Improvement Project was commenced to support residents who have dementia using Tibetan Bowl Sound Therapy. The project was focused on **promoting relaxation and inner wellbeing**.
- Initial anecdotal results were positive and presented during Accreditation in June 2012.
- Application for the Don Hutchinson Scholarship in 2012 to extend the project and link to evidence based research.
- Aim to **reduce agitation** related behaviours and to improve sleep and eating patterns.
- To reduce **number of adverse events** for both residents and staff due to agitated behaviour from residents with dementia.
- Pilot study - Ethical Approval was obtained from the HREC at the University of Western Australia.



Defining agitation

Agitation is is **not a diagnostic term**, but rather a term used by clinicians for a group of symptoms that may reflect an underlying disorder (Cohen-Mansfield and Billig (1986))

Agitated behaviour can be manifested in three ways:

- May be abusive or aggressive toward self or others.
- May be appropriate behaviour performed with inappropriate frequency, such as constantly asking questions.
- May be inappropriate according to social standards for the specific situation.



Research into sound therapy

- Small scale studies have been conducted on **the therapeutic effects** of TSBT on those who are ill and/or recovering from illnesses such as cancer.
- Therapeutic for with headaches or who have a diagnosed **mental illness such as anxiety disorder** (Kempen, E. 2007; Bensimon, Amir & Wolf, 2012).
- Therapeutic effects of music therapy / sound therapy for **calming those with dementia and agitation** (Bellelli, G, Raglio, A & Trabucchi, M, 2011; Lin et al, 2010; Spiro, N 2010).
- Further studies being conducted into using **nanotechnology** to assess the **cellular effects** of vibrations in cells within the human body (Pelling et al., 2004).



Methodology

- A **pilot study with 25 residents** of two houses within one Brightwater residential aged care facility. Of these, 16 full datasets were obtained.
- **Weekly one hour sessions** were provided using Tibetan Singing Bowl therapy (TSBT) for one month.
- The **existing database of resident adverse behaviours** and events audited before the therapy intervention (from six months prior).
- The validated **Cohen Mansfield Agitation Inventory (CMAI)** administered baseline, mid point and after the one month of intervention therapy sessions were completed.
- Sessions with resident participants during the TSBT therapy were **video recorded** to demonstrate the effects visually of TSBT.
- A **survey of staff** was administered before the month and post one month to ask about resident behaviours perceived as most difficult by staff to cope with.
- Case studies of eight residents were also collated by the sound therapist.

Cohen Mansfield Agitation Inventory



- The CMAI was developed for **use in residential aged care**.
- Used also by family caregivers, social workers, activity directors of senior day care centres and others. Also been used for clinical purposes.
- The CMAI may be **self-administered by a caregiver** or it may be completed by interviewing a staff or family caregiver.
- The CMAI is a caregivers' rating questionnaire consisting of **29 agitated behaviors**, each rated on a 7-point scale of frequency.
- **Three key areas** are physically aggressive behaviour, physically non aggressive behaviour and verbally agitated behaviour.

Cohen-Mansfield Agitation Inventory (CMAI)

Instructions: For each of the behaviors below, check the rating that indicates the average frequency of occurrence over the last 2 weeks.

| Behavior | Never 1 | Less Than Once a Week 2 | Once or Twice a Week 3 | Several Times a Week 4 | Once or Twice a Day 5 | Several Times a Day 6 | Several Times an Hour 7 |
|---|--------------------------|----------------------------------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|----------------------------------|
| 1. Hitting (including self) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Kicking | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Grabbing onto people | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Pushing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Throwing things | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Biting | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Scratching | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Spitting | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Hurt self or others | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Tearing things or destroying property | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Making physical sexual advances | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Paces, aimless wandering | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Inappropriate dress or dressing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Trying to get to a different place | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Intentional falling | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Eating/drinking inappropriate substances | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Handling things inappropriately | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Hiding things | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Hoarding things | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Performing repetitious mannersisms | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. General restlessness | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Screaming | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Making verbal sexual advances | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. Cursing or verbal aggression | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. Repetitive sentences or questions | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. Strange noises (weird laughter or crying) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. Complaining | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. Negativism | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. Constant unwarranted request for attention or help | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Name of Rater: _____

Name of Primary Caregiver/Informant: _____

Note: This is the nursing-home, long version of the Cohen-Mansfield Agitation Inventory. For definitions of the behaviors, administration, scoring information, and other versions, please consult the manual.

Reprinted with permission from Jiska Cohen-Mansfield, PhD, Research Institute of the Hebrew Home of Greater Washington.



Baseline Amongst Residents

- 16 full data sets were completed. Profile of residents were as follows: Mean age = 85 years. Male / female ratio = 7 (44%) males and 9 (56%) females.
- Challenging behaviours were recorded on a database of residents from time of admission. Key problematic areas amongst the resident participants were:
 - Hitting both self, staff and other residents. Biting, grabbing others with high bodily tension and resistance.
 - Verbal aggression towards staff and residents. Pacing and restlessness. Poor appetite and refusal of food.
 - Requiring more staff (up to 3 direct care staff for one resident) to complete personal care tasks.



Staff Survey (pre intervention only)

Overall 16 staff members completed the pre intervention survey. Of those:

- All staff respondents (100%) felt that **restlessness** and agitation was the **most** challenging behaviour to cope with.
- **Aggression**, whether physical, verbal or both was also problematic (100%).
- The main negative impacts of challenging behaviours were **time management** (50%) and **preventing injuries** to self and other residents (40%).
- Main problems for residents were identified by staff as **self harm** and **injuring others** (68%) and **confusion / disorientation** (75%).
- 87% were **supportive** of complementary therapies and also felt that sound therapy at the Cove would **help address** resident agitation.



Results

Aggressive Behaviour:

Hitting, kicking, pushing, scratching, tearing things, cursing or verbal aggression, grabbing, biting, spitting.

| Time Period | Agitated | | Not agitated | |
|-------------|----------|--------|--------------|--------|
| 1 | 13 | 81.25% | 3 | 18.75% |
| 2 | 10 | 62.5% | 6 | 37.5% |
| 3 | 9 | 56.25% | 7 | 43.75% |

Verbally agitated behaviour:

Complaining, constant request for attention, negativism, repetitious sentences or questions, screaming.

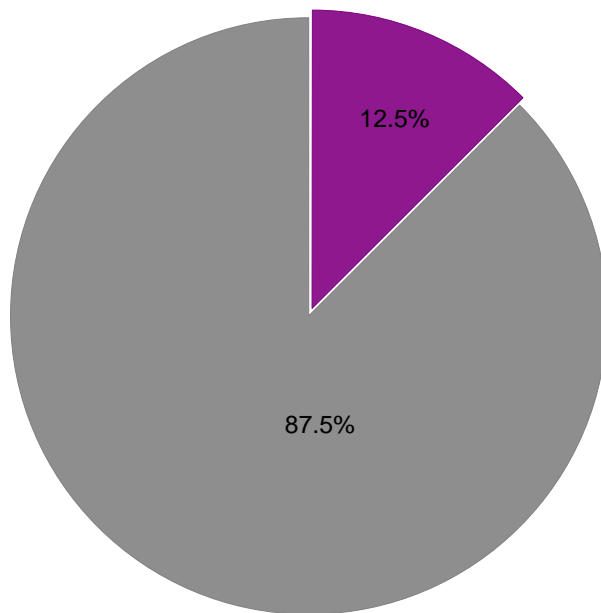
| Time Period | Agitated | | Not agitated | |
|-------------|----------|-------|--------------|-------|
| 1 | 10 | 62.5% | 6 | 37.5% |
| 2 | 10 | 62.5% | 6 | 37.5% |
| 3 | 8 | 50% | 8 | 50% |



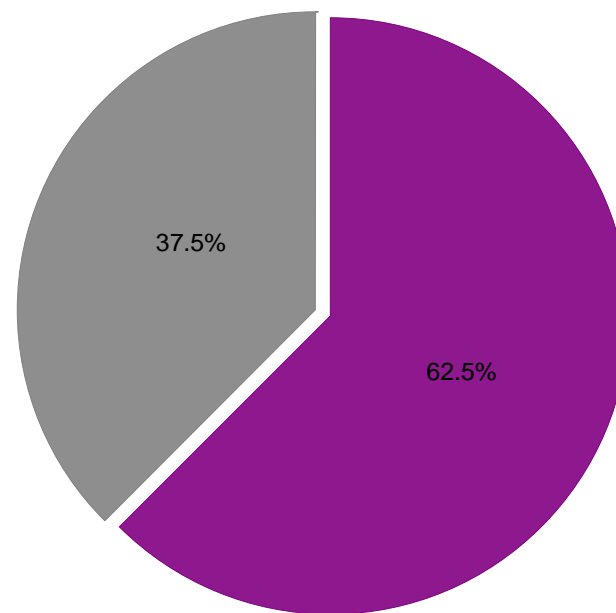
Physically non-aggressive behaviour:



Pacing, inappropriate robing or disrobing, trying to get to a different place, handling things inappropriately, general restlessness, repetitious mannerisms.

| Time Period | Agitated | | Not agitated | |
|-------------|----------|--------|--------------|--------|
| 1 | 14 | 87.5% | 2 | 12.5% |
| 2 | 11 | 68.75% | 5 | 31.25% |
| 3 | 6 | 37.5% | 10 | 62.5% |



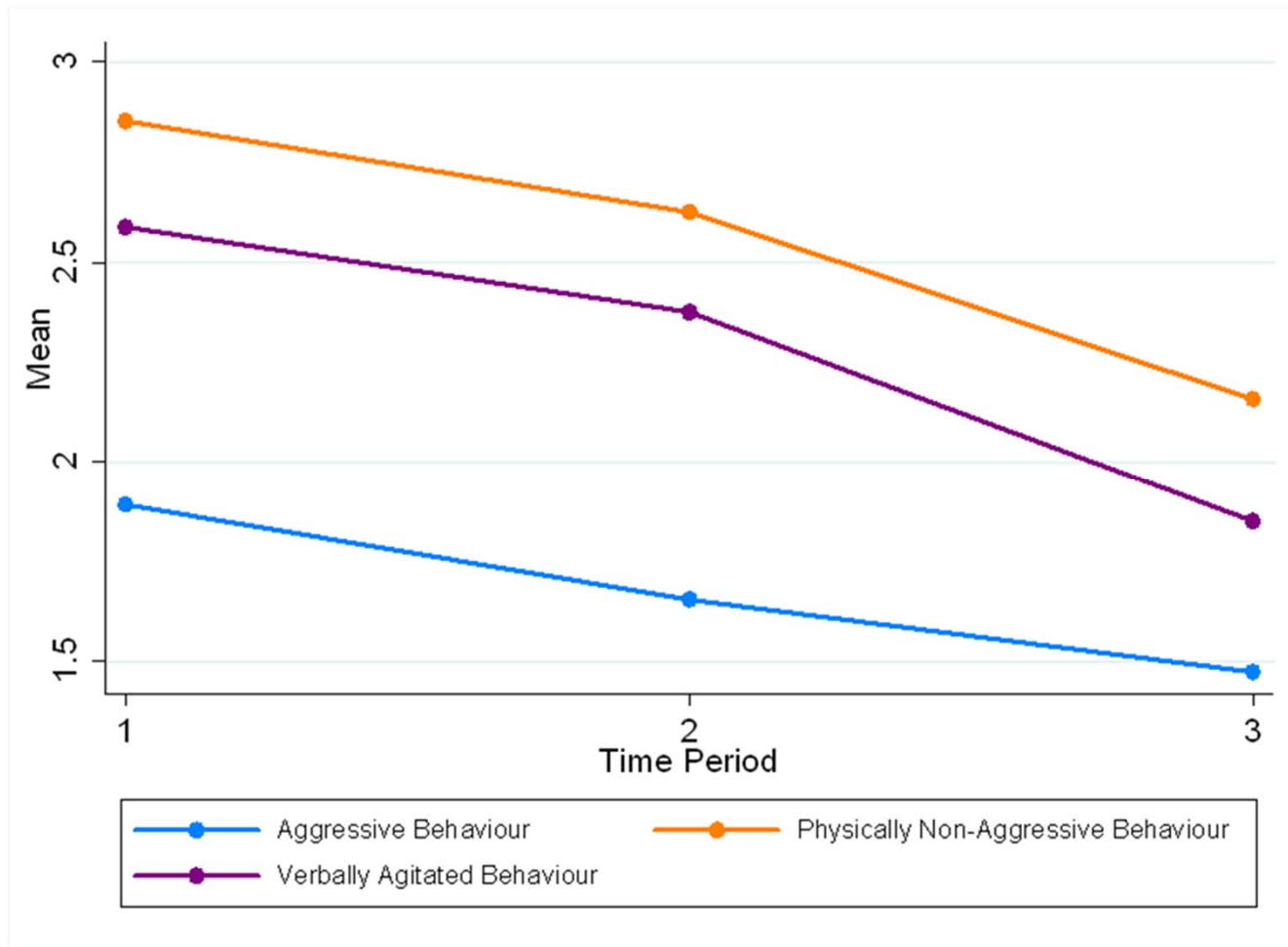
 Not agitated  agitated



 Not agitated  agitated



CMAI mean scores across the 3 time periods





Case Study 1

Background

- Male resident 82yrs
- Alzheimer's
- Depression
- Osteo- arthritis
- Degenerative changes to thoracic spine – pain ++
- WW II Concentration camp survivor
- Was a night watch man

Behaviours:

- Physical aggression towards staff
- Wandering/ intrusive

Challenges before:

- Hard to divert/redirect
- Injuring staff
- Low appetite / weight loss
- Slumped body posture
- Very agitated, climbing

With Sound therapy:

- Easier to redirect/divert.
- Less aggressive and less wandering at night times .
- Appetite has increased, meal assists himself and faster.
- Smiling more often, dances to some music.
- Less climbing on furniture.
- Change in body posture – more upright.
- Held a 'speech' at his wife's funeral, every word could be understood.
- When not been in session agitation increases, resident taken into his room, where the CD is played, he lies on his bed and immediately relaxes.
- Sleeps better at night time and seems to be more confident within himself.



Case Study 2

Background:

- Alzheimer's Disease
- Depression, Arthritis

Behaviours:

- Wandering +++, intrusive into other rooms
- Aggressive towards staff/other residents

Challenges before:

- Low in appetite
- Aggression towards staff/residents
- Wandering +++

With Sound therapy:

- Verbally more articulated, conversations with wife.
- Double the portion of dinner now.
- Reads newspaper not just flicking through, takes more notice.
- Talks more to family on Wednesday nights.
- More alert the next day.
- Still a bit agitated /tense at sun downing time.



Case Study 3

Background:

- Acquired brain injury
- Chronic back pain
- Impaired hearing

Behaviours:

- Agitation ++, aggression towards staff (injured x 4 staff)
- Wandering and up during night time.

Challenges before:

- Very aggressive and agitated at times.
- Hitting, kicking, spitting.
- Trouble sleeping at nights.
- Wandering.

With Sound therapy:

- Less agitated, less aggressive.
- Meal assist himself, still spilling food but getting less.
- Sleeping better.
- Still restless but not walking any more as before.
- Not 'calling out' as much.
- Calmer.



Case Study 4

Background:

- Depression
- Headache

Behaviours:

- Scratching people during ADLs
- Wandering++
- Restlessness and being intrusive into other peoples rooms

Challenges before:

- Very negative
- Verbally aggressive

With Sound therapy:

- C/o headache less, can see that sessions help her.
- Staying for the whole session these days and really enjoying it, laughing and joking with other residents in the session.
- More positive outlook, mood changed.
- Eating well.
- More settled on wed evenings.
- Sleeping better.
- Less intrusive.
- Joins in activities more.



Conclusions – Looking Forward

- Early indicators show that Tibetan Singing Bowl therapy performed once a week **is relatively effective in easing agitation** in persons with dementia.
- The behaviours **most commonly affected positively** by therapy are the non-aggressive behaviours (pacing, wandering and restlessness).
- A **CD played in the resident's room** can supplement the therapy session to good effect. However, therapist is central to efficacy.
- There are other potential anecdotal benefits such as **improved sleep, appetite and attention span**.
- A **larger sample** is required to show benefits more conclusively.
- The therapy may be **applicable to other areas** of Brightwater Services such as the rehabilitation program for younger persons with acquired brain injury.
- **Staff sessions** to reduce stress levels.

Thank you!

