Aging & Mental Health

ISSN: 1360-7863 (Print) 1364-6915 (Online) Journal homepage: www.tandfonline.com/journals/camh20

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To cite this article: Gillian Eaglestone, Charlotte Stoner, Rosana Pacella & Paul McCrone (04 Mar 2026): Cost-effectiveness of a music therapy intervention for people living with dementia: a model for a UK-based economic evaluation, Aging & Mental Health, DOI: 10.1080/13607863.2026.2639043

To link to this article: https://doi.org/10.1080/13607863.2026.2639043

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Published online: 04 Mar 2026.

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https://doi.org/10.1080/13607863.2026.2639043

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Cost-effectiveness of a music therapy intervention for people living with dementia: a model for a UK-based economic evaluation

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ABSTRACT

Objectives: Cognitive Stimulation Therapy (CST) is widely used in UK dementia care to support cognitive and social functioning. Music therapy (MT) also shows cognitive benefits for people living with dementia (PLwD) but is not routinely available through the NHS due to limited cost-effectiveness evidence. This study evaluated the combined use of CST and MT compared to CST alone, providing a realistic assessment of the added value of MT within standard care.

Method: A decision analytic model was constructed using a cost utility framework with a healthcare perspective, over a three-month time horizon. It compared CST+MT with CST alone for community-dwelling people with moderate dementia. The clinical effectiveness outcome was cognitive improvement measured by MMSE score. Model parameters were informed by existing literature and clinical trial data where available.

Results: Over a three-month period, MT+CST was more effective than CST alone in improving cognitive function but was not cost-effective due to higher initial costs, including setup and equipment. However, when cognitive benefits were assumed to persist over six months, CST+MT became cost-effective.

Conclusion: MT combined with CST may offer cost-effective cognitive benefits for PLwD over a six-month period. The model provides valuable evidence for decision-makers considering the broader adoption of MT.

ARTICLE HISTORY
Received 19 September 2025
Accepted 13 December 2025

KEYWORDS
Dementia; music therapy; health economics; non-pharmacological therapies; psychosocial

Introduction

Dementia is a significant global public health challenge which has substantial economic implications, largely driven by the increasing care needs of people living with dementia (Ward et al., 2022). There is currently no cure for dementia, and available drug treatments to slow progression are costly (World Health Organisation, 2025). This has led to growing interest in non-pharmacological interventions which don't directly involve the use of medication, to be used alongside drug therapies.

Cognitive Stimulation Therapy (CST) is the most widely used psychosocial intervention for individuals with mild-to-moderate dementia in the UK, with 80–90% of memory services incorporating it into routine care. CST consists of structured group activities aimed at enhancing cognitive function and social engagement and has demonstrated benefits over usual care. Current guidance by the National Institute for Health and Care Excellence (NICE) recommends a small number of non-pharmacological therapies for PLWD (National Institute for Health and Care Excellence (NICE), 2018a) including cognitive stimulation therapy (CST).

Music has long been recognised for its therapeutic benefits, including reductions in stress and improvements in mental health (Mofredj et al., 2016). For people living with dementia (PLwD), music can support language, memory recall, and psychosocial well-being, while also reducing anxiety and slowing cognitive decline (McDermott et al., 2013; Shimizu et al., 2018; Ting et al., 2024). Music engages neural networks involved in cognition and memory, promoting neuroplasticity and supporting functions such as recognition and information processing (Ceccato et al., 2012; Shimizu et al., 2018) and has been linked to improvements in sleep (Rapaport et al., 2024). The ability to recall familiar songs despite memory loss illustrates its unique value of music in dementia care (Liu, 2025). Importantly, music-based activities are a popular and enjoyable activity for both caregivers and PLwD demonstrating its acceptability (Camic et al., 2013). Music therapy (MT) is a person-centred, evidence-based intervention, provided by a qualified music therapist that uses structured music experiences to address the emotional, cognitive, and social needs of individuals (Carr et al., 2013). It has shown potential in

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enhancing quality of life, reducing behavioural symptoms and facilitating communication among PLwD, particularly within community settings where sustained engagement is essential (Abraha et al., 2017; Holmes et al., 2006; Lyu et al., 2018; Sung et al., 2006; van der Steen et al., 2025).

There are three main types of MT reminiscence, receptive and active (Gómez-Gallego et al., 2021; Jordan et al., 2022). Reminiscence and receptive MT tend to have passive elements (Jordan et al., 2022; Tsoi et al., 2018). Receptive MT involves participants actively listening to pre-recorded or live music rather than creating or performing the music themselves (Tsoi et al., 2018). Active MT invites participants to engage through singing, emotional expression, and creating musical sounds or rhythms using instruments (Gómez-Gallego et al., 2021). Sessions frequently incorporate movement such as dancing, tapping, or stomping in response to the music (Aleixo et al., 2022; Gómez-Gallego et al., 2021; Moreno-Morales et al., 2020). The use of rhythmic cues within active MT can support motor function and may contribute to neurological rehabilitation by stimulating brain and nervous system pathways. Active MT has been shown to be particularly effective in improving cognitive function in moderate dementia (Gómez-Gallego et al., 2021; Lyu et al., 2018).

Given its widespread adoption, CST is considered a standard component of post-diagnostic dementia care. Evaluating music therapy (MT) alongside CST is therefore policy-relevant, as MT is typically delivered as a complementary intervention rather than in isolation.

Despite the clinical evidence, economic evaluations of MT remain scarce, limiting the ability of decision-makers to consider it for routine dementia care (Gaviola et al., 2022; Livingston et al., 2014; Riedl et al., 2025). Economic modelling can address this lack of evidence by combining data from multiple sources to estimate long-term costs and outcomes, thereby offering insights into its potential cost-effectiveness. Economic evaluations in healthcare are conducted to compare alternative interventions by examining the costs and outcomes of each (Briggs et al., 2006). These evaluations provide a framework for assessing the relative value of different healthcare strategies. Economic evaluations are playing an increasingly central role in policymaking and funding decisions, driven by the need to allocate limited resources efficiently in the face of growing disease burdens. Advances in medical technology and pharmaceuticals further intensify the challenge of determining which interventions should be prioritised. Consequently, economic evaluations have become critical tools for assessing the cost-effectiveness of healthcare strategies. In the UK, the publicly funded structure of the NHS, combined with rising demand and finite budgets, underscores the urgency of employing economic evidence to guide cost-effective and evidence-based national health policy (WHO, 2017). From an economic perspective, even marginal improvements in cognition can lead to large savings because the need for transfer to long-term care can be delayed.

Although MT has shown promising improvements in improving cognition, mood, quality of life and daily functioning it is not currently endorsed by NICE. This study aimed to model the cost-effectiveness of active MT for improving cognition, compared to usual care.

Aim

The aim was to conduct a model-based economic evaluation of active MT in addition to CST and routine care, for PLwD in a UK community setting. A decision-tree approach was used for the model, which was populated using data from the wider literature and analysis of secondary data.

Methods

A purpose-built decision-tree model (Figure 1) was constructed to show the costs and health outcomes of a twice-weekly, active MT intervention over a period of three-months compared to usual care. The primary outcome measure used in the model was quality-adjusted life years (QALYs), in line with recommended practice for economic evaluations in healthcare from NICE (National Institute for Health and Care Excellence (NICE), 2022).

Patient population and comparator

The target population of the model was people living with moderate stage dementia, in a community setting. Moderate dementia has been defined by a Mini-Mental State Examination (MMSE) score of 15 in accordance with NICE criteria, where moderate dementia typically scored between 10 and 20 (National Institute for Health and Care Excellence (NICE), 2018a).

Intervention: The intervention in the model was based on delivery by a trained music therapist (Health and Care Professions Council (HCPC) registered, postgraduate trained) in a community setting with a small group ($n = 5$) reflecting formats typically used in clinical practice and described in published research (Moreira et al., 2023; Raglio et al., 2015). RCTs typically delivered MT over 6-12 wk (Ceccato et al., 2012; Giovagnoli et al., 2018; Gómez-Gallego et al., 2021). However, some studies extended to 24 wk, although evidence for sustained cognitive benefits beyond 12 wk is limited (Giovagnoli et al., 2018). The model assumed 60-minute sessions, twice weekly for 12 wk, based on published protocols (Chéour et al., 2023; Gómez-Gallego et al., 2021; Moreira et al., 2023). All participants were assumed to be in receipt of CST and routine care as part of standard practice.

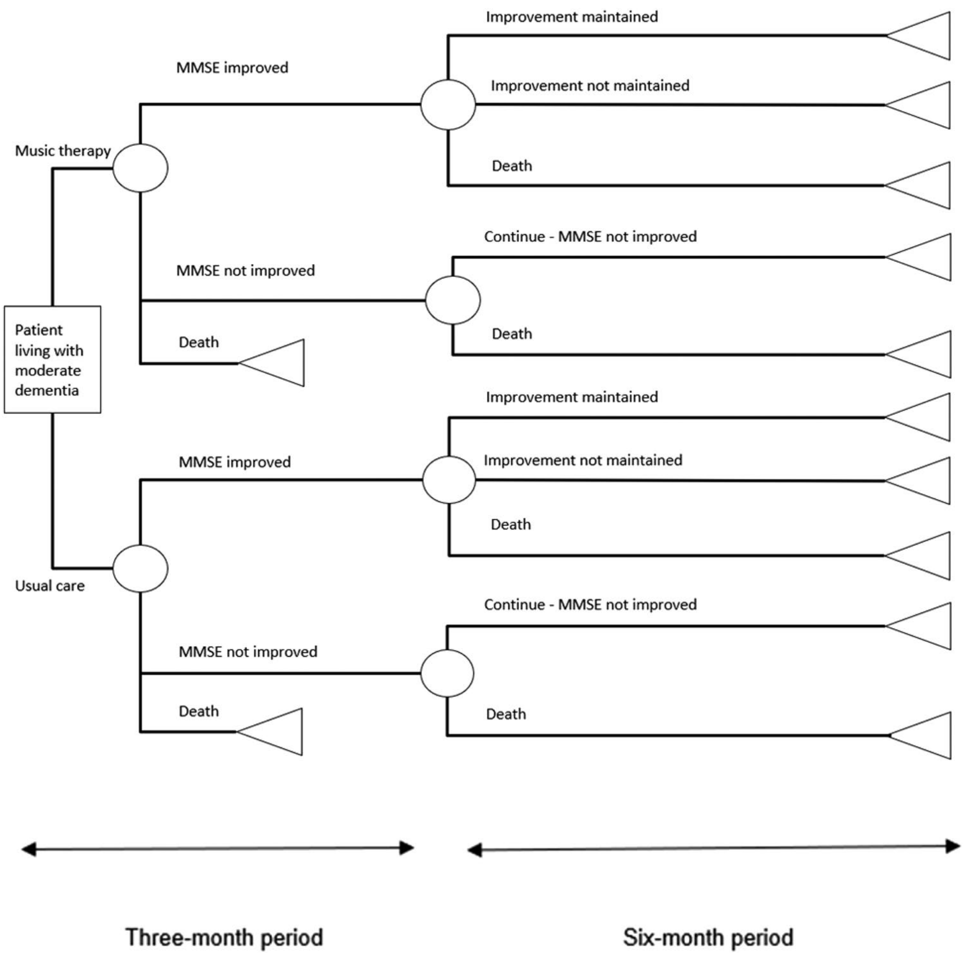

Figure 1. Model diagram.

Comparator: Usual care involved receiving CST and routine care only, *without* MT input, which did not require additional staffing or materials.

The model compared costs and outcomes from an NHS healthcare perspective, which incorporated direct healthcare costs associated with inpatient and outpatient use.

Time horizon & discount rate

The time horizon reflected the short-term duration commonly used in randomised controlled trials (RCTs) of MT interventions (Gómez-Gallego et al., 2021; Lyu et al., 2018; Moreno-Morales et al., 2020). Additionally, the model incorporated a scenario analysis over a six-month period, to estimate the impact of continued intervention, assuming that cognitive improvements seen at three-months were sustained longer-term. Given the model's time horizon of less than one year, cost discounting was not applied, in accordance with standard health economic evaluation practices.

Model structure

The structure of the model (Figure 1) outlined potential clinical pathways for PLwD receiving MT in a community setting. Costs and outcomes were predicted simulating potential patient responses. The structure of the model and methodological approach were informed by recent cost-effectiveness modelling on disease modification therapies by NICE and other models in dementia and mental health (Kolovos et al., 2017; National Institute for Health and Care Excellence (NICE), 2011; Nguyen et al., 2018). The modelling approach conformed to the guidelines outlined in the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) for the reporting of methods and results (Husereau et al., 2022).

The model was developed in Microsoft Excel. The pathway options in the model were to receive either MT or usual care. The outcome of this was either MMSE improved or did not improve, or death. If the intervention continued for a further three-months, the MMSE change could be maintained or not maintained, or death.

A cost-utility analysis approach was taken which considered costs and health benefits using quality adjusted life years (QALYs) (National Institute for Health and Care Excellence (NICE), 2022). The incremental cost-effectiveness ratio (ICER) was calculated by dividing the difference in costs between two interventions, by the difference in their outcomes.

Willingness-to-pay (WTP) thresholds were calculated to reflect the monetary value that individuals or society assign to a health gain to provide an evidence base to guide healthcare resource allocation.

WTP is frequently applied as the value of an additional year of life or QALY (Sloan & Hsieh, 2017).

MMSE

The primary objective of the model was to predict a delay or reduction in cognitive decline, with changes in MMSE scores being the key outcome measure. Existing studies of MT have commonly used MMSE score to assess cognitive function (Chéour et al., 2023; Giovagnoli et al., 2018; Gómez-Gallego et al., 2021; Han et al., 2017). MMSE scores were mapped to utility values to create a measure of quality of life (QoL), enabling calculation of QALYs.

This mapping followed the approach of Brazier (2001), who linked MMSE to the Health Utilities Index Mark 3 using regression modelling of Alzheimer's disease trial data. In that study each one-point reduction in MMSE corresponded to a 0.03 decrease in utility, from which Brazier (2001) derived the following equation:

$$\text{Utility} = 0.0982 + \left(0.0298 \, \text{x} \, \text{MMSE score}\right)$$

(Brazier, 2001)

Parameters

Input parameters & sources

The model was populated using evidence from existing studies and published costings data. Model input parameters are listed in Table 1.

Costs

Estimates of resource use and the unit costs were obtained from the literature, where possible, and are shown in Table 2. All costs within the model were calculated in 2022 British pounds. Service use costs were sourced from the *Unit Costs of Health and Social Care 2022 Manual* and supplemented by information from a UK MT provider (Jones et al., 2023; Richmond Music Trust, 2025). The costs associated with MT extend beyond staffing and include equipment, environment, and administrative considerations. Depending on the therapist's approach, equipment such as speakers, smartphones, percussion instruments, keyboards, or song sheets may be required, with adaptations sometimes necessary for individuals with sensory impairments (Gaviola et al., 2022). Technology-based delivery can incur additional expenses for devices, music streaming or downloads, as well as cleaning, storage, and maintenance. Environmental factors, such as ensuring a comfortable therapeutic space, may add costs for room hire and travel (Richmond Music Trust, 2025), while staff training and administrative time, for example, creating personalised playlists, represent further resource implications (Gaviola et al., 2022). Music licensing is generally not required in UK healthcare settings, where use is deemed therapeutic rather than entertainment; however, licences may be necessary in non-clinical community venues such as community centres (Phonographic Performance Limited). The cost of the MT intervention incorporated both personnel and equipment expenses. These estimates were obtained from an independent UK-based MT provider and were based on a one-hour group session delivered to five PLwD (Richmond Music Trust, 2025). Travel-related expenses were not included in the model.

Inpatient and outpatient care costs were derived from a secondary analysis of mental health service use in a UK cohort of patients with MCI or dementia at South London and Maudsley NHS Foundation Trust (SLaM). SLaM serves a catchment of 1.3 million people across Croydon, Lambeth, Lewisham, and Southwark—an area characterised by ethnic diversity, deprivation, and health inequalities. Clinical records from SLaM are linked to the Clinical Record Interactive Search (CRIS) database, which provides secure access to anonymised, routinely collected data for approved research under an opt-out system. Use of CRIS data was approved by the South-Central Oxford C Research Ethics Committee (removed). CRIS records of all patients aged 18 years or older with a primary diagnosis of MCI or dementia between 01/01/2010 and 31/12/2020 were analysed to determine costs of mental health service use one-year pre/post diagnosis.

The cost of death in the model was set to zero, with no further costs or health-related quality of life accrued beyond that point in line with other dementia economic models (Vandepitte et al., 2020). Direct costs associated with end-of-life care were excluded.

Sensitivity analysis

Sensitivity analysis was conducted to test the robustness of the results and explore uncertainty. A range of sensitivity analyses were conducted which tested the robustness of the model to variations in key parameters. One-way sensitivity analyses were conducted to vary the key model parameters independently including intervention effectiveness, costs, and rates of mortality to assess their impact on the cost-effectiveness of MT compared with usual care.

Parameter values were varied by ±20% and ±50%. For cost parameters, asymmetric ranges were applied to better capture realistic variability. For instance, the intervention cost was modelled to increase by up to 50% but decrease by only 20%. This approach reflects the limited likelihood of substantial cost reductions, given fixed components such as staff time, training, and infrastructure. In contrast, cost escalation was deemed more plausible in real-world implementation,

Table 1. Model input parameter values and sources of information.

Parameters	Value	Description	Source reference	Source type
MMSE starting score	15	MMSE score of 15 to represent moderate dementia severity	National Institute for Health and Care Excellence (NICE),) (2018b)	UK guidelines
Mild	24	MMSE score to represent mild dementia severity	As above	As above
Severe	9	MMSE score to represent severe dementia severity	As above	As above
Time horizon	3 months (with an additional model over 6 months)	Reflects short-term outcomes reported in MT trials	Giovagnoli et al. (2018) Gómez-Gallego et al. (2021)	Randomised controlled trial (Italy; Spain)
Duration of MT sessions	60 min	Informed by randomised controlled trials, meta-analysis and a systematic review. Duration of sessions ranged from 12 min to 120 min	Gómez-Gallego et al. (2021) Ceccato et al. (2012) Ito et al. (2022)	Randomised controlled trial, Spain Randomised controlled trial, Italy Review and meta-analysis
Number of MT sessions per week	2	Informed by a data from a meta-analysis of MT. Frequency was shown to range from daily sessions to sessions once a week	Ito et al. (2022)	Review and meta-analysis
Probability of MMSE improvement in 12 wk with MT (MMSE score change of 3 or more points)	0.7040	Probability estimated from the results of network meta-analysis	Ting et al. (2024)	Calculated from results of network meta-analysis
Probability of MMSE improvement in 12 wk with Usual Care (MMSE score change of 3 or more points)	0.0630	Probability of improvement in MMSE score (characterised by 3 points or more) with usual care	Gómez-Gallego et al. (2021)	Randomised controlled trial, Italy
Probability of death with moderate dementia	0.0587	Annual probability with moderate dementia = 21.5% The 3-month probability was then calculated from this using a formula by Briggs et al. (2006)	Spackman et al. (2012)	Patient-level data, US
Probability of death with mild dementia	0.014	Annual probability with mild dementia = 5.5% The 3-month probability was then calculated from this using a formula by Briggs et al. (2006)	Spackman et al. (2012)	Patient-level data, US
Probability of death with severe dementia	0.1508	Annual probability with severe dementia = 48% The 3-month probability was then calculated from this using a formula by Briggs et al. (2006)	Spackman et al. (2012)	Patient-level data, US
Probability of improvement being maintained for another 3 months while MT continues	0.25	This was an estimate, no data on this was available	N/A	N/A
Probability of improvement being maintained with usual care	0.02	This was an estimate, no data on this was available	N/A	N/A

where factors such as service expansion, wage inflation, or regional differences in delivery costs could increase expenditures. These asymmetric ranges were incorporated into tornado diagrams to visualise their impact on the ICER.

Assumptions

Several simplifying assumptions were made to model parameters about the population, treatment effect and mortality in the absence of evidence (see Table 3). Specifically, it was presumed that the cognitive impact of MT delivered in community settings would be comparable to that observed in institutional environments such as nursing homes. Furthermore, PLwD were assumed to continue receiving MT irrespective of cognitive decline, reflecting the interventions observed in published RCTs (Gómez-Gallego et al., 2021).

Participants who did not demonstrate improvement in MMSE scores during the initial three-month simulation were assumed to maintain this trajectory in the extended six-month model. This assumption reflects the progressive nature of dementia, and the limited cognitive benefits typically associated with pharmacological treatment alone. Individuals who

Table 2. Cost input parameters and sources of information.

Parameters	Value	Description	Source reference	Source type
Cost of MT per person per week	£82	Weekly costs of MT, per person. Based on a one-hour group session with a music therapist for five people twice a week. All equipment provided	Richmond Music Trust (2025)	Private MT provider in the UK
Cost of usual care per week	£0	Cost of usual care was assumed to be zero	N/A	N/A
Cost of inpatient/outpatient care with moderate dementia – MMSE score 15 (range 10-20) (per week)	£76	Post-diagnosis yearly figure divided by 52 to get cost for a 1-week period £3,970/52	CRIS data analysis	Patient-level data, UK
Cost of inpatient/outpatient care with mild dementia – MMSE score 15 (range 10 – 20) (per week)	£53	Post diagnosis yearly figure divided by 52 to get cost for a 1-week period = £2,751/52	As above	Patient-level data, UK
Cost of inpatient/outpatient care with severe dementia – MMSE score 15 (range 10 – 20) (per week)	£90	Post diagnosis yearly figure divided by 52 to get cost for a 1-week period = £4,698/52	As above	Patient-level data, UK
Cost of inpatient/outpatient care with a 3-point increase in MMSE score (per week)	£9.56	Annual cost reduction 1-point MMSE increase = £497 Weekly reduction = £497 / 52 = £9.56 For a 3-point MMSE increase over 12 wk 3×12 x 9.56 = £344.16 Obtained from CRIS data regression (univariate analysis) post-diagnosis figure over 1 year	As above	Patient-level data, UK
Cost of care with death	£0	Death was treated as terminal with no associated cost. Informed by previous modelling studies that have assigned a zero cost to death	Vandepitte et al. (2020)	Markov model for dementia

Table 3. Assumptions used in the model.

Parameter	Assumption	Justification	Source
Population	PLwD aged 70 years; moderate stage dementia at model entry	Matches population in published MT studies and NICE definitions	Ceccato et al. (2012) Giovagnoli et al. (2018); National Institute for Health and Care Excellence (NICE),) (2018b)
Treatment effect	The impact of MT interventions on MMSE scores in the community is assumed to be the same as if the intervention were carried out in a nursing home. MT was assumed to continue even if cognition declined. Non-responders to MT were assumed to continue without improvement	Assumptions reflect disease progression and generalisability across settings	Ting et al. (2024); Gómez-Gallego et al. (2021)
Mortality	Death assumed at the midpoint of the model (6.5 or 18.5 wk). No additional costs after death	Used in similar cost-effectiveness models; end-of-life costs excluded	Vandepitte et al. (2020); Office for National Statistics (2025)
Costs	Only NHS provider costs included. Travel costs excluded Cost of usual care assumed to be zero, assessment is of the additional costs of the intervention	Focus on direct healthcare costs; travel costs are considered negligible	Jones et al. (2023); Richmond Music Trust (2025)

Table 4. Baseline results of the three-month model – initial improvement.

Pathway	Weighted costs (£)	Incremental costs	Weighted QALYs*	Incremental QALYs*	ICER
MT	£1,326		0.1346		
Usual care	£986	£340	0.1211	0.0135	£25,237

died during the simulation were assigned zero additional costs. Deaths were modelled to occur at the midpoint of each time horizon, 6.5 wk in the three-month model and 18.5 wk in the six-month model to reflect average timing and cost implications.

Results

The base-case analysis indicated that MT was more effective but also more costly than usual care, with an incremental cost-effectiveness ratio (ICER) of £25,237. Although MT yielded greater QALYs than usual care (0.0135, vs. 0.1211) it was associated with an additional cost of £340 per person (Table 4).

However, over six-months the MT pathway was still more costly than usual care (£2,542 vs. £1,885; +£657 per person) but QALY gains were greater (+0.0359) (Table 5).

Sensitivity analysis

One-way deterministic sensitivity analysis of the three-month model (Figure 2) was visualised using a Tornado diagram. This revealed that the model was most sensitive to MT costs and the effectiveness of usual care. Higher MT costs substantially increased the ICER, while greater effectiveness of usual care reduced MT's relative benefit. Moderate effects were observed for changes in MT effectiveness and intervention duration. Parameters such as dementia stage, associated care costs, and mortality had minimal impact. These findings highlighted the importance of accurate cost and effectiveness data in economic evaluations of MT. Improved precision in these areas would enhance the reliability of future models.

Sensitivity analysis of the six-month model (Figure 3) using a Tornado diagram showed that intervention costs increased, as would be expected over a longer time period. The model was highly sensitive to how long improvements were maintained. Other parameters had a minor impact with minimal influence on the ICER comparison. Parameters remained robust to the sensitivity analyses that were applied.

Discussion

This model is among the first to evaluate the cost-effectiveness of community-based MT for individuals with moderate dementia in the UK. The model contributes new evidence on the cost-effectiveness of MT to add to the body of evidence. It integrates current clinical evidence, including a recent network meta-analysis and cost inputs from national datasets and real-world care providers. A structured modelling approach and deterministic sensitivity analyses enhanced its relevance, with the willingness-to-pay threshold aligned to NICE guidelines.

The results suggested that while the base-case ICER of £25,237 per QALY exceeded the commonly cited UK WTP threshold of £20,000 per QALY used by NICE for decision-making, the six-month scenario produced an ICER of £18,335 per QALY which is within commonly accepted threshold. This shift reflects the accumulation of additional QALY gains over time, with incremental costs rising more slowly than benefits. The results therefore suggest that MT may be more cost-effective when delivered over longer durations, provided that improvements in cognitive function and quality of life can be maintained.

Evidence has shown that non-pharmacological interventions can offer good value for money, particularly those which target quality of life and social engagement (Guzzon et al., 2023; Livingston et al., 2014). In the context of broader economic evaluations

Table 5. Results of the six-month model – maintenance of improvement.

Pathway	Weighted costs (£)	Incremental costs	Weighted QALYs*	Incremental QALYs*	ICER
MT	£2,542		0.2595		
Usual care	£1,885	£657	0.2237	0.0359	£18,335

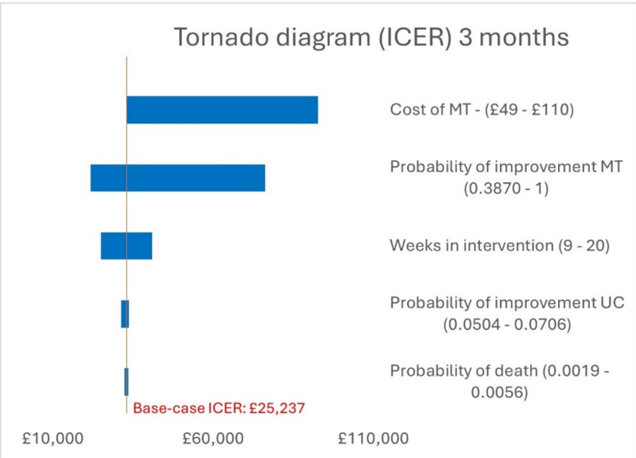

Figure 2. Tornado diagram showing key drivers of cost-effectiveness at three months.

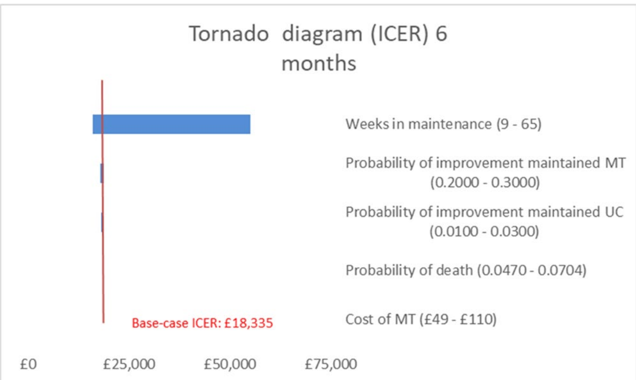

Figure 3. Tornado diagram showing key drivers of cost-effectiveness at six months.

in dementia care, the findings of this model align with evidence which indicates that non-pharmacological interventions for PLwD can be cost-effective (Brown et al., 2019; D'Amico et al., 2015). Although relatively few studies have directly assessed the cost of MT, existing evaluations suggest promising economic outcomes (Gaviola et al., 2022; Romo & Gifford, 2007; Tsoi et al., 2018).

While the model uses active music therapy which is a predominantly collaborative approach consistent with much UK MT practice, it is acknowledged that other formats are also in use. For example, some clinicians practise Guided Imagery and Music (GIM), which requires additional specialist training and emphasises active music listening and reflection as core therapeutic components. Recognising this diversity highlights that the current model represents one possible format of MT within a broader spectrum of MT practice.

Limitations

Several limitations should be acknowledged. Effectiveness data were partly drawn from non-UK sources, and costs were not adjusted for inflation beyond 2022. The clinical evidence base showed heterogeneity, and several included studies had relatively small sample sizes, which may affect generalisability. In addition, structural uncertainty was not formally explored, and travel costs were excluded, which may underestimate aspects of real-world service use. Obtaining robust UK-specific data on MT outcomes and costs remains challenging, and the use of MMSE-to-utility mapping, while pragmatic, may not reflect wider quality-of-life gains in dementia care. Although the six-month scenario indicates improved cost-effectiveness, the long-term sustainability of these benefits remains uncertain.

The model used a parameter of delivery of twice weekly sessions, this reflects formats used in several published studies on music-based interventions. However, it is acknowledged that this frequency exceeds what is typically seen in UK clinical practice, where MT is often offered once a week or in short blocks depending on the context and funding. The frequency in the model was chosen to reflect evidence indicating that higher therapeutic intensity can support engagement and outcomes in time-limited interventions rather than a fixed standard for routine clinical delivery.

Therapist costings were based on data from a private provider in London, selected for its transparency and accessibility. It is recognised that music therapists in the UK work across a range of sectors where costs can differ. This cost was therefore used as a modelling assumption to provide an indicative estimate, with the understanding that therapist cost parameters can be adjusted in future analyses.

Recommendations

From a policy perspective, the model findings support the potential value of MT in community-based dementia care. Standardised cost reporting and economic evaluations are essential to inform broader adoption of MT, and commissioners should be aware of its relative cost-effectiveness compared with other non-pharmacological interventions. Sensitivity analyses highlighted the cost of the MT intervention, the effectiveness of usual care, and treatment duration as key drivers of cost-effectiveness. This underscores the importance of setting-specific cost data and consistent reporting of intervention delivery to inform decision-making.

Future work and implications

Future research should focus on collecting detailed, UK-specific cost and outcome data across diverse care settings, including long-term follow-up to test the durability of MT benefits. Expanding the scope to include individuals with MCI, may reveal greater cost-effectiveness through early intervention. High-quality trials are needed to refine effect estimates, standardise outcome measures (e.g. MMSE), and assess impacts beyond cognitive decline, such as caregiver and social outcomes.

Future versions of the model could consider incorporating family caregivers into MT sessions. Involving carers may offer opportunities to share supportive roles within sessions, potentially improving efficiency without increasing resource requirements. Their participation could also strengthen engagement and continuity of care by drawing on their understanding of individual needs. This integration may therefore support both cost-effectiveness and improved outcomes for PLwD and families.

Further modelling should address structural uncertainty by exploring alternative frameworks, health state definitions, and assumptions about the persistence of MT effects. Direct comparisons with other non-pharmacological interventions, such as CST or exercise programmes, would also help situate MT within broader dementia care strategies.

Conclusion

An economic model was developed to assess the cost-effectiveness of community-based active MT for people with moderate dementia in the UK. Drawing on current evidence of clinical benefits and UK-specific cost data, the model suggests that MT may be a cost-effective longer-term intervention, improving cognitive function among community-dwelling PLwD. Sensitivity analyses indicated that while short-term outcomes (three months) were influenced by intervention costs and the effectiveness of usual care, the model demonstrated greater robustness over six months, with intervention costs emerging as the primary driver of long-term sensitivity.

Despite limitations including reliance on non-UK clinical data and the absence of structural uncertainty analysis the findings offer valuable insights for policymakers considering wider implementation of MT in dementia care. This model contributes to the growing evidence base supporting the integration of MT into community dementia services.

Acknowledgments

This research was supported by the National Institute for Health Research (NIHR) Applied Research Collaboration Kent, Surrey, Sussex. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.

Disclosure statement

The authors report there are no competing interests to declare.

Funding

This paper presents independent research undertaken as part of a funded Vice Chancellor's PhD scholarship in the Centre for Mental Health in the Institute for Lifecourse Development at the University of Greenwich.

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