

# Long-term implementation of the Managing Agitation and Raising QUality of lifE intervention in care homes: A qualitative study

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## Abstract

**Objectives:** The dementia care home workforce receives little specific training. There are successful interventions, improving care outcomes, but it is unclear whether or how to sustain these effects. The Managing Agitation and Raising Quality of Life (MARQUE) intervention aimed to train care home staff to reduce resident agitation and improve quality of life. It was designed for sustainability, with implementation plans agreed with managers. MARQUE improves quality of life. In this separate study, we aimed to examine implementation around 2 years later.

**Methods and design:** We explored practice change since the intervention and considered current implementation of home-specific action plans, enablers or barriers, and perceived benefits or harms of implementation using semi-structured interviews with staff working in the trial homes who received the MARQUE intervention.

**Results:** Six out of 10 intervention homes participated. We interviewed 25 staff, 20–30 months after the MARQUE study. In all homes, staff reported that at least one MARQUE component was sustained. Three themes emerged about sustained practice change: (i) communication, (ii) respect and understanding of roles, and (iii) ability to try new things. Notable changes included improved team working and feelings of competence, positive attitude to residents rather than blame for agitation and avoidance, and more pleasant activities. Leadership support was important.

**Conclusions:** It is possible to sustain some change over years in care homes. This study indicates factors which help or impede. These factors individually and together could lead to long-term improved quality of life of residents in homes where it is implemented and sustained.

## KEYWORDS

agitation, care homes, dementia, implementation, intervention, practice change, quality of life

## Key points

- Use of at least one component of the successful Managing Agitation and Raising Quality of Life intervention was sustained in care homes for up to 30 months

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- Change was seen in the areas of communication, staff respect and understanding of the roles of others, and the ability to try new practices
- This adds to broader understanding of the factors that impact upon the ongoing implementation of psychosocial interventions

## 1 | INTRODUCTION

Globally, the number of people living with dementia is expected to reach 152 million by 2050<sup>1</sup> with 60% living in low- to middle-income countries.<sup>2</sup> In some countries, many people with dementia live in care homes. In the United Kingdom, for example, around a third of 1.6 million people with dementia are expected to be living in a care home, so that social care costs will triple to £45.4 billion.<sup>3</sup> Nevertheless, in many countries, the workforce often has little training, despite being pivotal to the care of older people. Carers work within a challenging and complex system, caring for people with highly complex health and care needs.<sup>4–6</sup>

There has therefore been considerable focus on designing and evaluating evidence-based interventions, to improve outcomes for residents living with dementia and sustaining them with enabling and reinforcing strategies embedded in the system.<sup>7</sup> Recent randomised controlled trials (RCT) had short-term outcomes, Wellbeing and Health for People with Dementia (WHELD) improved quality of life and agitation,<sup>8</sup> and Managing Agitation and Raising Quality of Life (MARQUE) improved quality of life but not agitation.<sup>9</sup> In contrast, EPIC (Dementia Care Mapping) did not change agitation or quality of life<sup>10</sup> and BEYOND, educational and symptom management in people with young onset dementia did not improve agitation, reduce psychotropic prescription or decrease other neuropsychiatric symptoms.<sup>11</sup>

We do not know whether interventions enhance long-term outcomes. Changes in staff practices may not be sustained,<sup>12</sup> barriers include poor communication and organisational constraints in the complex care home setting.<sup>13,14</sup> Encouragingly, qualitative investigation following the WHELD intervention found that staff had continued to use a range of intervention activities and processes 9–12 months later.<sup>15</sup> Factors influencing this sustained change were 'recognising the value' of the approach for all; 'being well practised' with enough support to consolidate skills and 'taking ownership of the approach'. Similarly, during development of a measure to support comprehensive assessment of people living with dementia in care homes, the implementation requirement identified was leadership, through supervision and care planning, thus indicating value.<sup>16</sup>

This study follows on from MARQUE, a cluster RCT, involving 20 care homes in London, Cambridgeshire, and Buckinghamshire to examine the effectiveness of a complex manualised staff training intervention.<sup>9</sup> As the agents of change were staff and managers,<sup>17</sup> we explore from the staff perspectives whether and to what extent after the trial staff continued to use what they had learnt or sustain any changes into day-to-day practices.

## 2 | METHOD

### 2.1 | Ethical considerations

The National Research Ethics Service Committee, London, approved the trial and follow-up amendment (14/LO/0697, trial registration ISRCTN96745365). Participants provided written informed consent.

### 2.2 | Intervention

In the original study, the intervention was delivered by two trained and clinically supervised psychology graduates to all day-shift care staff. MARQUE comprises six manual-based interactive sessions (see Table 1 for details of session content).

Staff filled in and kept completed manuals and links to relaxation techniques. MARQUE aimed to make, embed and sustain change through staff practising techniques between sessions and introducing a variety of heuristics and tools to stimulate change, such as a game to get to know the resident's preferences Call-To-Mind, an acronym with template forms (Describe, Investigate, Create, Evaluate[DICE]) to address the causes of and help people who showed agitated behaviour and online relaxation tools. Staff developed implementation or action plans during the final session based on what had worked for them. These written plans were discussed and agreed with the home manager by trial staff. In-home supervision followed the sessions for up to 6 months after randomisation where facilitators and a clinical psychologist helped embed the practices.

### 2.3 | Care homes recruited

The RCT eligibility criteria were registered care home, up to 2-hr public transportation from UCL, no plans to close within 12 months, not currently participating in another intervention study, and care home agreement to make the training sessions mandatory for all direct care day staff.<sup>9</sup> Ten were randomised to intervention and 10 to usual care. Laybourne (AL) followed up with the 10 treatment homes. We show home characteristics in Table 2.

The average home size was 47 residents (range 26–76); 8 were privately owned, 9 registered dementia homes, and all were rated 'good' by the sector regulator, the Care Quality Commission, at the time they were recruited.

**Session 1: Getting to know the person with dementia**

This session included psychoeducation about education and staff experiences of managing agitation, including what works. It introduced the key theme that getting to know and understand the person with dementia can help staff to manage and prevent agitation from occurring. The session included a game, Call-To-Mind, to find out what the person living with dementia enjoyed doing and included a focus on managing the stress that caring can bring.

**Session 2: Pleasant events**

This session focused on the importance of pleasant events for residents. It included a focus on how to plan for and include residents living with severe dementia and how to build activities into day-to-day care. The session introduced the idea that even small interaction could be pleasant events.

**Session 3: Improving communication**

This session discussed communicating with people living with dementia, with a particular focus on how to respond when residents are distressed. It also included discussion and exercises on effective communication with the team and with relatives.

**Session 4: Understanding agitation**

This session introduced the DICE approach,<sup>18</sup> focusing on describing and investigating episodes of agitation. The content is framed in terms of recognising and understanding the unmet needs of residents with agitation.

**Session 5: Practical responses and making a plan**

This session focused on creating strategies to manage agitation, including practical and environmental changes and when to ask for additional help. The session also introduced the importance of building these strategies into a plan that can be evaluated.

**Session 6: What works? Using skills and strategies in the future**

This session recapped on earlier sessions and focused on what staff had found useful and what worked. It included the development of specific action plans, individual to each home, to enable to continue to use helpful strategies and approached and to inform the supervision phase of the intervention.

**Supervision**

Team members met with the care home manager in each home to ensure they agreed with the plan and set up supervision and troubleshooting meetings to support the implementation of action plans.

Abbreviations: DICE, describe, investigate, create, evaluate; MARQUE, Managing Agitation and Raising Quality of Life.

**TABLE 1** Overview of MARQUE sessions and tools<sup>9</sup>**TABLE 2** Home characteristics

Home	Funding	Type	Dementia registered	CQC rating	Size
1	Charity	Personal care	Yes	Good	26
2	Private	Nursing	Yes	Good	33
3	Private	Personal care	Yes	Good	43
4	Private	Nursing	Yes	Good	37
5	Private	Personal care	Yes	Good	43
6	Private	Nursing	No	Good	61
7	Private	Nursing	Yes	Good	76
8	Private	Nursing	Yes	Good	52
9	Charity	Personal care	Yes	Requires improvement	40
10	Private	Nursing	Yes	Good	64

**2.4 | Interview**

We asked managers of care homes to agree to the care home's participation. They asked individual staff to meet with researchers. We explained we wanted a varied sample with different roles and demographic characteristics. Researchers then gave identified willing

staff an information sheet and asked if they would participate in digitally recorded interview and subsequently obtained written informed consent. We purposively gathered a sample with diverse demographic characteristics and roles. We asked staff about practice change from MARQUE around 2-year post-trial (20–30 months) using semi-structured individual or group interviews which focused

on the action plans made on the home (Appendix 1); whether and how these plans or any actions not in the plans had taken place or what might have prevented it. Using open-ending questioning, we asked whether plans were currently being implemented, what enabled or hindered any continued implementation, and if there were perceived benefits or harms to implementation. To reduce bias in responses, it was emphasised that AL neither designed nor delivered the intervention and she asked for examples when staff suggested MARQUE was being implemented. Participants were encouraged to be critical and offer negative as well as positive views and feelings.

## 2.5 | Analysis

We anonymised transcribed data and used NVivo 12 to manage data and code. We used thematic content analysis<sup>19</sup> employing a constant comparison method of coding and analysing data through three stages<sup>20</sup>: open coding (examining, comparing, conceptualising, categorising data); axial coding (data re-organisation into groupings according to relationships and patterns within categories) and selective coding (identifying and describing the core concepts and themes). AL familiarised herself with the data and identified key words, trends, themes and ideas to help outline the analysis. AL and Livingston (GL) open coded two transcripts independently, comparing coding and developing a coding framework. AL carried out open and axial coding on remaining transcripts. Through regular discussion, AL and GL completed selective coding and identified the major concepts and phenomena. The positionality of the authors to the MARQUE trial: social gerontologist, study manager (AL); clinical psychologist, trial co-lead, MARQUE co-designer and clinical psychologist (PR); MARQUE designer, old age psychiatrist, principal investigator (GL).

## 3 | RESULTS

Six homes agreed to follow-up, two declined because they lacked the time and two did not respond. Non-participating homes did not differ from others in planned action, size or provider type. We interviewed 25 staff (22 female), 5 individually and 20 across six grouped interviews, with a mean age of 53.3 years (range 22–64, median = 57 years). All had received MARQUE training and their roles were: administration ( $n = 1$ ), activity coordinator ( $n = 4$ ), carer ( $n = 5$ ), manager, including unit or deputy management ( $n = 5$ ), nurse ( $n = 4$ ) or senior carer ( $n = 6$ ). In all homes, staff reported that at least one MARQUE component was sustained (Table 3).

MARQUE implementation was often patchy, and this was thought to be because of staff turnover affecting communication of new learning and process and the ability to try new things. In one home, a senior carer said that many staff trained by the MARQUE team had left and thought this was why only one action plan was now implemented. We found three main themes: (i) communication, (ii) respect and understanding of roles and (iii) ability to try new things.

Table 4 has been split into parts a–c, presenting illustrative quotations by theme.

### 3.1 | Communication

The creation of a common language and a shared action plan meant communication was easier. More staff in a broader range of roles spoke at meetings and handovers. Two-way communication increased, especially between different grades of staff. There was greater collaboration between team members when responding to the behaviour of residents, and staff had found new ways to discuss and respond to distressed residents. They worked more closely together and a culture of solving problems together, supporting each other and sharing what works emerged. New learning about dementia was also generalised and used to consider how to help residents with visual, auditory or speech impairments even if they did not have dementia.

Team members continued pre-training practice of communicating via 'corridor catch ups', now supplemented by using the DICE forms to address the causes of and help people who showed agitated behaviour and Call-To-Mind to learn and record what residents enjoyed (Table 1). Carers in some homes provided written documentation of strategies including pleasant events that worked to relieve resident distress but not always through the DICE forms. Staff also verbally shared information using the DICE format of trying to understand a problem, considering and trying solutions and evaluating their effect. Two homes added DICE to the electronic care planning system.

MARQUE manuals and tools provided physical ways for trained staff to communicate the training to new staff. In one home, for example, new staff received manuals in their induction pack. Staff were unsure whether this was enough and asked about for MARQUE top-up sessions. In another home, there was verbal training through team meetings with new members of staff to explain the manuals. In a third home, the deputy manager as training lead, incorporated MARQUE methods into the existing training programme. However, a senior carer thought that new staff needed to receive the same MARQUE training as the others.

### 3.2 | Respect and understanding

There was increased mutual understanding of workforce roles and respect and acknowledgement of skills, knowledge, and experiences of colleagues. One manager talked of how some staff at higher grades were surprised at how much junior staff knew about the residents and their care. A nurse-lead, reported to be at times impatient and formidable to junior staff, was now more patient and seen to understand that carers can find some situations of care intimidating.

Staff reported increased respect from external health and social care professionals around how they managed behaviour of residents and how residents' behaviour had improved. In one home, a nurse felt that the GP had been impressed by her reaction when a resident hit her. The nurse stopped the clinical conversation with the GP in a

TABLE 3 Summary of MARQUE components being used in individual homes up to 2-year post-intervention

Care home site number (N <sup>a</sup> )	MARQUE component					Using any techniques (%)
	Call-To-Mind	DICE	Pleasant Events	Communication	Relaxation	
A (4)	X <sup>b</sup>	X	√†	X	X	Yes (17)
B (7)	√	√	√	√	√	Yes (100)
C (5)	√	√	? <sup>c</sup>	?	?	Yes (40)
D (4)	?	√	?	√	√	Yes (60)
E (4)	√	?	√	√	√	Yes (83)
F (1)	√	?	?	?	?	Yes (20)
	4/5	3/4	3/3	3/4	3/4	

Abbreviations: DICE, describe, investigate, create, evaluate; MARQUE, Managing Agitation and Raising Quality of Life.

<sup>a</sup>Number of respondents.

<sup>b</sup>No longer happening.

<sup>c</sup>Unclear whether still happening; †currently happening in home.

communal area of the home to identify the behaviour trigger and solve it. A previously aggressive resident had been frequently considered by a multidisciplinary health team to understand and reduce their behaviour. This resident's behaviour had completely changed following the work carers had done to engage them better. The resident was no longer distressed and this staff member discussed their pride, and how impressed the social worker was by their skill.

Finally, there was evidence of an increased understanding of individual roles and that of others. The activity coordinators thought care workers now understand that their role was not only care tasks and much more frequently implemented pleasant events. There was much more resident activity than before when activity coordinators were not working, at weekends or evenings. In two homes, carers had devised their own activities schedule of low-level, everyday activities. This complemented the activity coordinator activities which tended to be whole-home, complex events.

### 3.3 | Ability to try new things

Carers' attitudes towards distressed behaviours changed, with carers seeing it less as the resident's 'fault' and more as an expression of need. Carers reported that they persevered and were creative in trying to find solutions to residents' distress. Care teams went further than before—one resident left her room for the first time in months after carers made a sustained effort as part of MARQUE implementation. Carers less often avoided residents presenting with agitated behaviour, feeling they now had strategies.

Staff felt that implementing these strategies from MARQUE enabled them to use less psychotropic medication, to find new ways to care for residents and personalise care. Some reported that the new skills and knowledge from MARQUE meant that staff felt abler to tackle difficult situations with residents themselves instead of relying on local community mental health teams. One way was through using Call-To-Mind to find what residents enjoyed, then using pleasant events. Staff reported individualising care through more personalised

activities, such as creating a box with objects associated with being a doctor for a resident who was a retired medic.

There was evidence, however, that if practice changes were not acceptable to staff, then practice was intermittent or stopped altogether. In one home, there was a new plan to move staff around different areas of the home so they would know all the residents. Senior staff wanted this to be done more frequently and spoke of needing to persuade, prompt and remind staff of the importance of this. Carers resisted, reporting it meant tasks took longer and they were unfamiliar with the residents' needs and the procedures of the unit.

Homes tried hard to keep action plans going but were sometimes unable to shift to an alternative but equivalent action when faced with barriers. This happened in one home, where part of the action plan to provide a pat-dog service. This had been very successful in the short term, but then the service became unavailable. A replacement dog-patting service was unavailable. Staff did not appear able to consider alternatives or amendments to this pleasant events action plan. However, in another home, the music playlist action plan developed by staff, was amended. After initially using the playlist, staff decided they wanted to have multiple playlists for residents' individual tastes and background. They used the skills developed through working with the facilitators to make new, more appropriate playlists.

Leadership support was an enabling factor for staff to try new things. Home managers supported action plans from the beginning, including changes made to the environment to accommodate plans. In one home, the manager made a room available so staff could listen to and follow relaxation. In two other homes, lead staff took a lead in driving the new plans and in maintaining enthusiasm, and interest in them. However, when one of the leads left implementation declined.

## 4 | DISCUSSION

This is the first study with such a long-term follow-up that shows continuing implementation of a research intervention after the original

TABLE 4 Illustrative quotations and themes<sup>a</sup>

Theme	Illustrative quotation
<b>COMMUNICATION</b>	
Two-way	Yes, so after the training, you know, what I noticed everybody discussing their own things with the staff, team member, after this Call to Mind game and the activity relating to all the carers, you know. So two-way communication happened more with the activity with the carer. [B/2/Activities]
Collaboration	I see a calmness when they encounter agitation...I see more of a collaboration about getting over the hurdle of agitation.... There's more confidence. The words the staff use is better. The way they rationalise it is better. [D/1/Manager]
Beyond dementia	And at the end of the day it's not with only people who suffering dementia, it's people with, you know eye vision problems, people who find it hard to speak, hard to hear. So I think that it covers everything. It's the base of everything. [B/2/Activities]
DICE-inspired communication	We don't use it in the form manner, but we use it on a day-to-day [basis] really. It's part and parcel of what we do. [D/4/Care]
New starters in the home	I've still got the programmes that you gave us. And I'm still using them on training sessions that I'm doing when I do my team meetings. [C/1/Manager] Like when I train them with... The company has set up a 'Game of Homes' training and I am the trainer for that. When I'm training, I bring in everything that has been helpful. I bring in the game of... Because I like the game of Call to Mind, I like it because that is working perfectly. [B/3/Manager] And those who did this training, maybe they already left the job, and we have new staff here and they haven't done that training. It could be that. Because we have so many old staff who have already left. The new staff, they don't know these things, maybe they need the training again. [C/4/Senior]
Team problem solving	To find ways, how to deal with a person who is agitated and restless, to help them calm down and relax...because of the support of other staff. If this technique doesn't work, you try this technique, or you haven't done this technique, try this one, it works for me. So maybe this time it won't work but try on another day and maybe it will work. So it helps, we share ideas and we share techniques as well with other staff. [C/5/Senior]
<b>RESPECT AND UNDERSTANDING</b>	
Of others and their roles	I think [the nurse lead] become a lot more patient with the staff... Who didn't understand what was going on [for them at work]. I think that was a big change that I saw. Because this is a very pressurised job at times. And care staff can get scared. [D/1/Manager]
Respecting knowledge of others	So sometimes you just think 'oh well I only know the resident where I'm working' or you think [carers] know just a bit but I think the team were quite shocked. And it was another level of respect for each other... some of the team members you just see them going, I didn't know that they knew so much, you know. So I'm like oh really? [E/1/Manager]
Impressing external professionals	So [the resident is] completely involved, you know. The social worker was impressed, as well, you know, when they say that guy is in order. [B/2/Activities]
Carers adding activities to their role	You go in [the lounges] sometimes, I have an activity schedule and then I just walk away. I'm like, they don't need me here. I just walk away which is amazing [E/2/Activities]
<b>ABILITY TO TRY NEW THINGS</b>	
Reduced need for medication	One man, he's dead now, was on Lorazepam. So this man has got fluctuating capacity. So we decided to be using the Call to Mind and music. And he was able to tell us so many things. It was then we knew that this man is somebody that likes to attend meetings. So when he's agitated, especially in the morning, [we say] 'Come, let's do ward rounds. Let's go around.' And we'd be talking and we'd be checking around, you know... So we didn't use Lorazepam for quite a while for him. No, we didn't, no. [B/1/Manager]
Residents as individuals	A/2/Carer: Yes. There's been some good things that came out of it. Especially when they're agitated and you try and get something different for their mind. A/1/Senior: Yes, because each [resident is] different.
Doing it themselves	We used to wait for somebody coming from...outside. To do validation with us...and come and tell us to do 1, 2, 3. But now I think the studies have opened our mind to say, okay, you can do this yourself. [D/2/Nurse]

(Continues)

TABLE 4 (Continued)

Theme	Illustrative quotation
Reluctance to planned change	<i>I find it a bit hard because you get used to working with the same people. And you get used to your residents. So, you going up on another community and you don't... If you sort of... A resident you haven't worked with before, you don't know, so you have to keep asking people which is a bit frustrating. [E/4/Carer]</i>
Leadership support	<i>Oh, yes, and she was at us all the time, make sure we use it, when she was there, but it's only now it died out a bit because the person who was really leading into it, but I can't do much, it is she that would say, and she herself was really... Then she was saying, you have to do this, have you seen them doing this? [F/1/Activities]</i>

<sup>a</sup>Single capitalised letter (for care home), a number, and role descriptor, for participants, for example, E/2/care—care is care worker.

study. We interviewed care home staff following the MARQUE trial which found no significant improvement in agitated behaviour but an improvement in resident's quality of life.<sup>9</sup> Staff reported that each home continued to use at least one of the tools from the intervention. In several homes, the materials were used for training new staff, with the intention that the methods becoming part of the culture and 'what we do here'. Staff communicated more about what helped residents, verbally, in writing or on electronic records, with more communication between people at different levels of the home hierarchy. Better communication, knowledge and practice sharing broke down barriers between role types within teams which in turn built better understanding and respect for each other. Staff attitude to residents who displayed agitation was more positive, seeing such residents as having unfulfilled needs and rather than avoid such residents, staff persevered in trying to find ways to help. They also now saw that engaging residents in pleasant activities was part of everybody's role rather than something that only happened during the activity coordinators working week. They perceived that their new skills made a difference and that health and social care staff outside the home noted their improved skills and were very positive about them. Communication with each other, finding success and respect of others meant that they could attempt new strategies, particularly as more staff felt heard, and that care worker's role was more than physical care. Leadership and frontline staff support for the plans facilitated implementation. Staff found that what was useful for residents with dementia also helped to understand and communicate with other residents without dementia.

Our intervention was co-produced building on evidence of what works for agitated behaviours<sup>21</sup> with input from experts-by-experience as well as interviews with care home staff.<sup>22</sup> The new practices of working together and supporting each other meant residents lived in a more pleasant environment, leading to improved well-being.

With the progression of dementia and variation from person to person, high-quality, detailed observational care based on strong interpersonal relationships is essential to dementia care.<sup>23</sup> Person-centred care is central to policy and practice in the United Kingdom; the Care Act (2014) explicitly places the individual at the centre of care processes.<sup>24</sup> We found that MARQUE strategies, including concrete tools, provided structure for all staff, irrespective of grade, to develop more person-centred interactions with residents. Indeed,

engagement of the wider staff team during complex interventions is an important implementation facilitator.<sup>25,26</sup>

Training which aims for little changes, not large home-wide 'blanket' activities offers a practical way to personalise care to individuals living with dementia. Planned action including that which focused on emotional and relationship aspects of care was sanctioned by senior management and therefore became legitimate tasks—important in realist review of people living with dementia in residential care and hearing-related communication care.<sup>27</sup> This echoes process evaluations where leadership in the form of valuing the intended changes was seen to be an important factor in implementation.<sup>16</sup>

One of the MARQUE aims was to improve communication between staff and with residents and we are encouraged by the staff reporting this, including improving communication, which staff had emphasised was needed<sup>22</sup> and the evidence is that communication reduces agitated behaviour.<sup>21</sup> Here, teams communicated about shared action plans, common goals developed by staff groups and these underpinned the broader common goal of improving care and coping with residents' distress. This may have been enhanced by a better understanding of roles within the team, central to successful inter-professional working.<sup>28</sup>

An important finding is that staff felt better able to cope and look after residents, in-house, without usual levels of input from external care professionals. They tried new strategies which sometimes succeeded, which was both rewarding for staff and good for residents. Through DICE, staff were explicitly given permission to fail, if an intervention was evaluated as unsuccessful, they could 'throw the DICE again'. This supports process evaluation findings where individuals' openness to change was important.<sup>29</sup> Here, staff demonstrated a confidence and openness to creativity. These changes may partly explain our trial findings; in the short-term MARQUE cost money in training but saved money from reduced use of health services.<sup>9</sup> If staff feel more competent with residents and often have a deep relationship and connection, rather than external professionals completely unfamiliar to them, this may be best for the resident, as well as having economic benefits. Our findings are like the WHELD study, but more long-term showing changes were still in place after the intervention and suggest that embedding changes in practice in care homes is possible years later.

#### 4.1 | Implications of this research: Programme sustainability assessment

We retrospectively considered the MARQUE intervention using the programme sustainability assessment (PSA) to give context to our findings on advisement of our manuscript referees. The PSA comprises eight constructs: environmental support, funding stability, partnerships, organisational capacity, programme evaluation, programme adaptation, communications and strategic planning. In the context of the academic UK research grant landscape, 'funding stability' was very high, with funding secured for the lifetime of the work. However, within this landscape, 'strategic planning' for future resource needs is competitive and not guaranteed. MARQUE has reasonable 'environmental support' built in through the role of Champions as well as agreement from home managers and sometimes suppliers. 'Partnerships' is also a strength of MARQUE with its coproduction with stakeholders, for example, our expert-by-experience involvement throughout. There is strong 'organisational capacity' in MARQUE where it is designed to be building on what staff are already doing well. Related to this is MARQUE being intended to be adapted to individual care homes' own processes and practices, thus 'programme adaptation' is reasonable.

#### 4.2 | Strengths and limitations

The qualitative interviews enabled us to collect wide-ranging perspectives from those who participated in the intervention. The interviewer was unknown to the participants, apart from the home managers, allowing some distance from the trial and the intervention itself but they may have wanted to paint a positive picture both for themselves and for the interviewer. Limitations include most participants being in senior positions. We therefore have less perspective from the people working most directly with people living with dementia. Grouped interviews were a compromise at the request of managers, for example, when multiple staff were on a break at the same time, interviews were scheduled to interview them together. Each participant was asked the same question individually or in the group setting. We think that the combination may have been overall a strength of the study allowing individuals to give views away from others in the home but within groups discussion added to the richness of the findings. We did not have the opportunity to speak with anyone new since the training to see if the handing over of the methods to new members of staff seemed to have an effect, although we asked to speak to new staff. Managers oversaw whom we could interview and may have chosen those who were more positive. Finally, only six out of ten of ten homes in the original study participated, although homes were similar in characteristics, and it is possible that the non-participating homes may have had a less positive experience.

#### 4.3 | Future research

Future care homes' implementation research would benefit from considering the transmission of new practice from existing staff to new staff in the months and years post-study. This should include utilising the home's induction processes as part of intervention implementation. In addition, a focus on staff in junior care roles, comprising the majority of the care workforce, could be a good direction for future research of complex interventions and their implementation.

### 5 | CONCLUSION

Trial homes continued to use MARQUE intervention components around 2 years later and staff judged they were useful. Broader effects still evident from staff accounts included improved team working, positive attitude to residents' behaviour which was now often viewed as showing need and amenable to staff help, and more personalised activities. New staff were introduced in a variety of ways to the intervention. These factors individually and together could potentially lead to the long-term improved quality of life of residents in homes where it is implemented and sustained.

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#### CONFLICT OF INTERESTS

There are none to declare for any author.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## APPENDIX 1

Action plans themed by the main MARQUE sessions for care homes taking part in study.

Call-To-Mind	DICE	Pleasant events	Communication	Relaxation
Activities co-coordinators will play Call to Mind on Wednesdays with residents. Carers will play it during lounge time (2-4:30 pm) on 30 min rotations. Managers and champions to continue to remind carers to play Call to Mind during rotations. Keep a record form for each resident in red Call to Mind folder on each floor (B)	Modified DICE plan on the unit to quickly learn about residents (A)	Stop every week for 15 minutes pleasant events (A)	Create board for visual cues (A) Lockable cabinets on each unit for care plans, medication charts (A)	Continue guided imagery sessions, for staff but also try out with residents (A)
Continue using Call to Mind with residents: as part of the activity schedule/as and when staff have time (and part of key worker sessions)/keep encouraging carers to use it (D)	Carers will complete Distressed Reaction Monitor forms each time residents get agitated - recording what helped, what didn't help and all likely causes of agitation. Nurses will lead discussion of residents during special days and create/evaluate DICE plans for agitated residents. Nurses will also lead discussion of DICE plans with carers as needed during handover (B)	Finding a pat-dog activity & Keep stress balls on the wing (for residents to use) (A)	Managers will reserve 5 minutes at morning handover to bring up any issues that have arisen in the team and with relatives, saying something like "does anyone have any communication issues today in the team or with relatives?" The team can use the communication book to document any issues. Put up posters in the kitchen, laundry, staff lounge etc with a reminder of assertive communication and other communication styles. (B)	Posters will promote and remind people of relaxation techniques to use during stressful times. Posters will be put up in staff room, nurses station etc. (B)
Use Call to Mind on communities and find existing games in the home. Team to carry cards with them (E)	During weekly quality circle time and 'standing up meeting'/morning handover), all staff can work through DICE record forms for agitated residents. Laminated record forms can be used as a prompt to think through reasons for agitation and to develop strategies. If staff want to record new ideas, a record form can be completed and added to the resident's care plan (D)	All care staff will write down any pleasant events they do with residents on the chart in the 'MARQUE' folder in the nurse's station on each floor. Once a month ID alongside managers will choose the "pleasant events person of the month" and they get a £10 voucher and a badge. (B)	Every morning at the handover meetings on each floor, there will be an open invitation for staff to share any tip they have about specific residents. This could be Particular likes or dislikes/Ways to communicate well with them/Things which help when they get agitated. Home to add this to the agenda for meetings (D)	Staff particularly value relaxation exercises and think they would benefit from dedicated relaxation time, not part of their break: between 2-3pm. Allocate times for staff to use the warmer room/ staff room to play relaxation exercises on a CD OR at the beginning or end of quality circle time. One member of staff reads relaxation exercise for the others to follow (D)

(Continues)

## APPENDIX 1 (Continued)

Call-To-Mind	DICE	Pleasant events	Communication	Relaxation
Use Call to Mind in lounges on each floor after breakfast and lunch in small groups once/ twice per week if residents want to play. Encourage relatives to join in. Activity co-ordinator to ensure Call to Mind is built into activities plan during Namaste / café time and can delegate this to carers when they are rota'd on to activities. 1:1 use with residents who are mostly in their rooms. It is important to offer Call to Mind and a choice of other pleasant events (F)	DICE folder with blank DICE record forms and DICE plans to be accessible to all carers in each lounge. Carers to complete step by step DICE record forms when agitation occurs. Completed DICE record forms will be kept in DICE folders. Senior carers will look at completed DICE record forms and complete DICE plans for agitated residents on Mondays when resident care plans are reviewed (C)	Activities will create 3-4 new playlists to put on the two iPads after finding out what type of music residents like. Some suggestions were Reggae music, Rock music, Gospel and African music. Care assistants can access playlists and are encouraged to use playlists; especially on weekends and in evenings when activities are not there (B)	On Wednesdays staff will have meetings in their units while senior staff are in their weekly handover meeting. [Manager] will also join unit meetings, coming to a different unit each week. This general staff meeting can be used to keep discussing ideas from MARQUE such as: communication; teamwork; sharing of ideas; relaxation exercises; pleasant events with residents; residents; relatives. This is a time to share information and ideas, get to know each other better and support each other (C)	Staff relaxation: "The [home] Stretch" and / or having stretches up on the wall in quiet staff room. See if it might be possible to organise a staff Tai Chi session? (E)
	Keep using DICE approach: DICE plans as summary sheets of residents; use the record forms and steps (D-I-C-E) for more serious or hard to manage agitation; to have a folder containing all DICE plans/ one page summary sheets in the study AND a copy in the files in people's rooms (E)	Create weekly pleasant events schedule where everyone can see it with different suggested events each day, such as: Call To Mind; dancing or singing with residents; painting or drawing; hand massages; using musical instruments; board games on Saturdays; taking residents out for short trips. [Carer] to create pleasant events schedule each week with help from 'pleasant event champions' from each unit. Pleasant event schedules to be approved by [CHM] (C)	CHM to inform relatives about happenings in the home through Facebook and the new website once it launches. Pleasant events schedule will be uploaded to Facebook or the website each week so relatives can keep up to date and join in with pleasant events and activities happening in the home (C)	Regularly using relaxation techniques in the home and in the team. Stretching and signal breath most likely (E)
	There will be a folder on each floor with blank DICE plans / record forms. This will also contain a reminder of '5 main causes of agitation' (and a poster version, for a reminder on the wall.) After a resident has been agitated, any staff member can complete a plan to share ideas of what has worked and return this to the folder (F)	Starting to create memory boxes: staff to gather information from residents about what they might like to have in their memory boxes (E)	What do I like?" sheet. This is mostly for team members working in other communities, but also for new team members. Names, nicknames, communication strategies, personal care tips (e.g. what assistance I need, what can I do independently), drinks/snacks, pleasant events (E)	

## APPENDIX 1 (Continued)

Call-To-Mind	DICE	Pleasant events	Communication	Relaxation
		<p>Continue ensuring pleasant events happen as often as possible and are matched to individual residents' interests. Share what works well at handover, add them to the 'about me' section of care plan. Focus more on writing about this in the daily report so that information is specific to each resident. Have a poster near the computer with examples of pleasant events to record when they have happened (F)</p>	<p>Team members seeing working on a different floor as an opportunity to learn about other residents and have a change of environment. People to take turns working on other floors rather than the same individuals covering every time (E)</p>	
			<p>Improving communication within team. Encourage assertive communication. Prompts: what is the issue? Who is involved? What can be done? How is everyone thinking and feeling? (E)</p>	
			<p>Create staff support meetings to have opportunities to share effective ideas with one another (team wide), away from the demands of being on the floor, The meetings can cover ideas from training: relaxation/ using DICE/ sharing good communication strategies; anything else staff think useful (F)</p>	