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Impact of 'DEALTS2' education intervention on trainer dementia knowledge and confidence to utilise innovative training approaches: A national pre-test – post-test survey

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ABSTRACT

Background: Gaps in acute care staff knowledge, skills, and attitudes towards dementia exist. Innovative training approaches that improve the delivery of care for people with dementia are needed. We were commissioned by Health Education England to develop and evaluate a new dementia education intervention 'Dementia Education And Learning Through Simulation 2' (DEALTS2), a simulation toolkit to enhance delivery of dementia training nationally across England.

Objectives: Evaluate differences in trainer dementia knowledge scores pre and post training, satisfaction with DEALTS2 Train-The-Trainer (TTT) workshops and simulation toolkit, confidence to use training approaches, and spread of implementation.

Design: A questionnaire survey using a pre-test – post-test design with measures completed: before (pre-test); after (T1); and 12 months post training (T2).

Setting: Twelve one-day DEALTS2 TTT workshops delivered across England in 2017.

Participants: National Health Service Trust staff employed in dementia training roles ($n = 199$ trainers).

Methods: Trainers attended DEALTS2 TTT workshops and received the simulation toolkit. Data were collected between 2017 and 2018 using a questionnaire capturing differences in dementia knowledge scores, Likert scales and closed-ended questions measured satisfaction, confidence and implementation. Data were analysed using quantitative methods.

Results: Response rate was 92% ($n = 183$) at pre-test/T1 and 26% ($n = 51$) at T2. Trainer dementia knowledge scores increased from pre-test to T1 ($p < 0.001$) and were retained after 12 months in 5 of the 6 areas measured (pre-test to T2, $p < 0.002$); largest gains in 'humanised approaches to dementia care'. 96% ($n = 176/183$) were satisfied with DEALTS2 TTT workshops and simulation toolkit; 66.7% ($n = 34/51$) felt confident to deliver dementia training informed by DEALTS2. Adherence rates were good with 45% ($n = 23/51$) using the innovative training approaches within twelve months.

Conclusions: The results show DEALTS2 effectively increased trainer dementia knowledge and confidence to utilise innovative dementia training approaches. Implementation of DEALTS2 varied across organisations, therefore further research should explore factors determining successful implementation.

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1. Background

The need for effective dementia training to support staff in acute care settings to deliver person-centred and outcome-focused care is outlined in United Kingdom (UK) policy (NICE Dementia Guidelines, 2018; Department of Health, 2012; Skills for Health et al., 2015, 2018). Despite the documented value of dementia training for the acute care workforce, accredited dementia training is not currently a UK mandatory requirement and therefore quality varies nationally (Smith et al., 2019). In England, dementia training is usually delivered locally in each individual National Health Service (NHS) Trust ($n = 135$) by in-house staff. The recent National Audit of Dementia (2019) shows dementia training is being delivered using a range of teaching methods with little consistency between Trusts, for example, workshops/study days, eLearning, workbooks and higher education modules. Moreover, the choice of teaching method appears to impact on how staff rate their 'preparedness to care and support people with dementia' (National Audit of Dementia, 2019) and ultimately whether the training makes a positive difference to practice (Surr and Gates, 2017; Surr et al., 2017, 2020a, 2020b). There remains a need to identity innovative dementia training approaches to effectively support the staff delivering dementia training in acute care settings across England to improve the quality and consistency of training nationally, and to ensure that such training positively impacts on staff professional practice.

1.1. Innovative approaches using simulation for delivering dementia education

Simulation-based education in healthcare is the imitation of real world scenarios in a safe environment; enabling educators to develop and assess staff skills, knowledge and attitudes whilst protecting patients from avoidable risks (Cook et al., 2011; Lateef, 2010). Simulation engages the emotions of staff and is more effective than traditional classroom-based lectures at having a positive impact on staff behaviour and patient outcomes (Adefila et al., 2016; Cowdell, 2010; Leah et al., 2017; Scerri et al., 2017). Health educators rarely use simulation to teach the interpersonal skills necessary in good dementia care (Ryall et al., 2016); despite the recognised value of this approach for staff to gain insight into the lived experience and develop their interpersonal skills (Adefila et al., 2016; Leah et al., 2017). One pilot study showed increased confidence amongst experienced hospital staff after a simulation-based dementia training day (Leah et al., 2017). Thus further research is needed to investigate the effectiveness of simulation-based education and training in acute care settings (Surr and Gates, 2017).

1.2. Study rationale

We were commissioned by Health Education England (HEE) to create a new national innovative dementia training intervention, in the form of a simulation toolkit, to support trainers in acute care settings to utilise innovative dementia training approaches across England. Building on the original 'Dementia Education And Learning Through Simulation' (DEALTS) programme created by HEE (Clarke, 2014, 2015), we developed 'Dementia Education And Learning Through Simulation 2' (DEALTS2) (Heward et al., 2019). DEALTS2 is a Train-The-Trainer (TTT) simulation-based dementia education intervention, placing staff 'into the shoes of a person with dementia' to facilitate positive impacts on practice. Details about the development of DEALTS2 have been published elsewhere (Heward et al., 2019).

1.3. Study aims and objectives

The aim of the overall study was to evaluate the implementation and impact on practice of the DEALTS2 dementia education intervention across England. Data collection and analysis was informed by the Kirkpatrick (1959) model for evaluating effectiveness of training. The research objectives were to:

1. Evaluate differences in trainer dementia knowledge scores pre and post training, satisfaction with DEALTS2 train-the-trainer workshops and simulation toolkit, confidence to use the innovative training approaches, and spread of implementation.
2. Examine enablers and barriers experienced by trainers to implementing DEALTS2 across England, and impact on practice following implementation.

2. Methods

2.1. Study design

The study was conducted in two phases (Fig. 1) with data collected in 2017 and 2018. In Phase 1 data were collected from trainers attending the DEALTS2 TTT workshops through a pre-test – post-test survey design (Objective 1). Quantitative measures were completed immediately prior to commencing training (pre-test), after completion of training (time point 1 = T1), and 12 months post training (time point 2 = T2). In Phase 2 qualitative data were collected through semi-structured telephone interviews and the open ended questions in the T2 survey (Objective 2). In this paper we report the quantitative results from the pre-test – post-test survey completed by trainers that attended the DEALTS2 TTT workshops in Phase 1 of the study.

2.2. DEALTS 2 workshops and simulation toolkit

The DEALTS2 TTT workshops were delivered as a one-day training session (Heward et al., 2019), here data is reported from twelve workshops held in 2017. The simulation toolkit was reviewed as part of the pilot of the Dementia Training Design and Delivery Audit Tool (DeTDAT) (Dementia Training Design and Delivery Audit Tool DeTDAT v4 Auditors Manual) to ensure that it met good practice criteria identified in the '*What Works' in dementia education*' study (Surr and Gates, 2017; Surr et al., 2017). Once reviewed the DEALTS2 toolkit was published on the HEE website[2] and emailed to all the trainers who took part in the DEALTS2 TTT workshops ($n = 199$).

2.3. Implementation approach

After participating in the DEALTS2 TTT workshops, participants were invited to utilise the innovative approaches they had learnt within

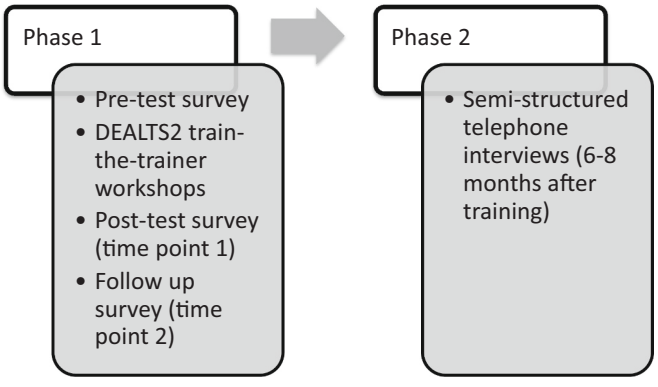

Fig. 1. Diagram of study design procedure.

[2] https://www.hee.nhs.uk/our-work/dementia-awareness/dementia-education-learning-through-simulation-2.

the dementia training delivered in their Trust. Trainers were given the option to adopt the materials as is, or to adapt them to suit identified training needs in their Trust. Trainers were also provided with evaluation forms to obtain pre and post training feedback from the staff they planned to train, and encouraged to email questions or concerns about implementation to the research team.

2.4. Recruitment of trainers

Trainers were employed in dementia training roles in NHS Trusts across England, and held various job titles including Dementia Educator, Ward Manager, Practice Development Nurse and Lead Dementia Nurse Specialist. All participants were either already delivering dementia training as part of their role, or were expected to start in the near future. Recruitment took place between January and April 2017. HEE regional dementia leads advertising the places on the twelve one day TTT workshops to local Trusts (240 places in total). Entry requirements were: experience of delivering training; completed general dementia awareness training; organisational support to be released to deliver DEALTS2 and contribute to evaluation. Participants (n = 199) were therefore a convenience sample of trainers.

2.5. Data collection

At the beginning of the TTT workshops, trainers were approached to gain consent for the study. The majority (n = 183; 92%) of trainers agreed to participate at this stage, completing a pre-test survey prior to the TTT workshop, and on completion (T1). All trainers that attended the TTT workshops (n = 199) gave permission for the research team to email them the link to the online follow up survey (Online Surveys) 12 months later (T2).

2.6. Outcome measures

The pre-test – post-test survey using Likert scales and closed ended questions measured dementia knowledge scores, satisfaction, spread of implementation, and confidence (Appendix 1). A 4 point Likert scale was applied to rate level of knowledge about dementia in the six topic areas covered in the workshop (Appendix 1).

Satisfaction with the DEALTS2 workshop and toolkit was measured at T1 and T2. At T1 trainers were asked to use a 5 point Likert scale to rate: (a) satisfaction with toolkit (b) satisfaction with workshops in meeting Tier 2 learning outcomes. Ratings were per unit and the complete training package (Appendix 1). At T2, trainers that had used the DEALTS2 materials in dementia training were asked to use a 5 point Likert scale to rate whether the materials were a useful addition to their dementia training. Ratings were per unit and the complete training package and per discussion or simulation activity (Appendix 1).

Confidence in using the DEALTS2 materials in own dementia training was measured at T2. Participants were asked to use a 5 point Likert scale to rate their agreement with seven statements (Appendix 1). At T1, intention to use DEALTS2 in dementia training was obtained from trainers (next month, next three months, next six months, next twelve months, or not sure). At T2, spread of implementation was measured by the number of staff trained (1–25, 26–50, 51–100, 200+) and training sessions delivered (1–4, 5–15, 16–30, or 31+).

2.7. Statistical analysis

Data was analysed using the Statistical Package for the Social Science (SPSS)® (version 26.0). Descriptive statistics were used to describe participant characteristics. All outcome variables were ordered categories analysed independently of one another; therefore median, quartiles and appropriate non-parametric tests were used to summarise and compare data for each time point.

Median scores were calculated individually for the six dementia knowledge topic areas measured (Appendix 1). Repeated measures were used to measure differences in dementia knowledge: pre-test to T1, T1 to T2; and pre-test to T2. A two tailed Wilcoxon Signed-Ranks Test measured differences in knowledge score from pre-test to T1. Confidence interval was set at 95%, and knowledge differences were statistically significant if $p < 0.05$. Effect size was calculated in Microsoft Excel using the formula ($r = Z/\sqrt{N}$). In accordance with Cohen (1988, 1992) the effect size was considered small if the value of r was between −0.01 to −0.03, moderate −0.03 to 0.05, and large −0.05 to 0.10. Two tailed Mann-Whitney U Tests with Bonferroni Correction compared differences in knowledge scores from T1 to T2 and pre-test to T2. Due to the number of comparisons ($n = 2$), a Bonferroni Correction was applied to the Mann-Whitney U Tests to reduce the likelihood of Type I errors (Andrade, 2019). This was calculated using the formula ($p = 0.05/2$) and consequently, a p value <0.025 was required for statistical significance.

Median scores for satisfaction with DEALTS2 workshops and simulation toolkit were calculated individually for each unit (or module) and the training package as a whole. Median scores for confidence were calculated individually for each of the seven confidence statements. Spread of implementation was calculated by taking the mean average of individual responses to the number of staff trained and training sessions delivered questions, and total derived from the sum of each question.

2.8. Ethical procedure

Ethical approval was obtained from the University Research Ethics Committee prior to the start of data collection (Reference ID 17647). Principles of informed consent, voluntary participation, the right to withdraw, confidentiality and anonymity were adhered to. Surveys contained a short overview about the study. Completing a survey indicated agreement to participate and for anonymised data to be included.

3. Results

3.1. Responses rates

In 2017 there were thirteen HEE regions across England. Trainers and other dementia experts from one of the HEE regions were involved in a pilot providing feedback on the draft DEALTS2 TTT workshop structure and simulation toolkit, which was integrated into the design of the intervention (Heward et al., 2019). Trainers from the remaining

Table 1
Number of participants taking part in DEALTS2 workshops and surveys, by Health Education England region.

Health Education England regions during DEALTS2 workshop delivery in 2017 (n = 13)	Number of participants per Health Education England region		
	Attending train-the –trainer workshops	Completing workshop survey (pre-test and T1)	Completing follow up survey (T2)
East of England	24	18	4
North West London	19	6	5
South London	28	20	10
North Central and East London	18	16	2
East Midlands	18	18	3
West Midlands	18	18	2
North East	13	13	1
Yorks and Humber	18	14	5
North West	21	20	4
Thames Valley	0[a]	0[a]	0[a]
Kent, Surrey and Sussex	7	5	5
South West	13	12	6
Wessex	17	8	4
Total	199	183	51

[a] Did not recruit from this region as they took part in pilot.

twelve HEE regions took part in the TTT workshops ($n = 199$) (Table 1). At pre-test and T1, 92% ($n = 183$) of the trainers completed the evaluation (Table 1). Of the trainers, 75% ($n = 137$) were employed in acute care with the rest in community hospitals 14% ($n = 26$), care homes 4% ($n = 7$), social care 5% ($n = 10$), and primary care 2% ($n = 3$).

At T2, whilst the number of trainers who responded decreased to 26% ($n = 51$), there was representation from all 12 HEE regions (Table 1). Of the trainers who responded, 78% ($n = 40$) were employed in acute care with the rest in community hospitals 14% (n = 7), care homes 2% (n = 1), social care 4% (n = 2), and primary care 2% (n = 1). There were no responses to the follow up survey (T2) from 11% ($n = 22$) of trainers, as they no longer worked in a training role or had left the Trust.

After completing the TTT workshops (T1), the following trainers reported increases in dementia knowledge scores across the six areas measured compared with pre-test: risk factors (43%, $n = 78$, Z = −8.03); lifestyle changes to reduce risk of dementia (46%, $n = 84$, Z = −8.86); person-centred approaches (44%, $n = 81$, Z = −8.20); communication and interaction (44%, $n = 80$, Z = −8.15); humanised approaches (68%, $n = 125$, Z = −10.31); and signposting to sources of support (51%, $n = 94$, Z = −8.29) (Table 2). For all six topic areas there were statistically significant differences in the median dementia knowledge scores at T1 (median = 4.00) compared to pre-test (median = 3.00), with a large effect size for differences in knowledge about the 'humanised approaches to dementia care' topic area ($r = -0.54$; $p < 0.001$) and moderate effect size for the remaining five knowledge topics areas measured ($r < -0.46$; $p < 0.001$).

Median dementia knowledge scores from T1 were retained at T2 in five of the six topic areas measured (median = 4.00); the score for the remaining topic area 'signposting to support' decreased (median = 3.00) (Table 2). Differences in knowledge from T1 to T2 were statistically significant in four knowledge topic areas with a small effect size: lifestyle changes to reduce risk ($p < 0.010$); communication and interaction ($p < 0.011$); humanised approaches ($p < 0.002$); signposting to sources of support ($p < 0.007$) but not for: risk factors ($p = 0.091$) and person-centred approaches ($p = 0.032$).

There was an increase between trainer median dementia knowledge scores from pre-test (median = 3.00) to T2 (median = 4.00 except 'signposting to support' which remained median = 3.00) (Table 2). These differences were statistically significant across all six topic areas measured, with a moderate effect size for differences in knowledge about the 'humanised approaches to dementia care' topic area ($r = -0.30$) and small effect size for the remaining five knowledge topics measured: risk factors ($p < 0.002$) lifestyle changes to reduce risk ($p < 0.001$); person-centred approaches ($p < 0.002$); communication and interaction ($p < 0.002$); humanised approaches ($p < 0.001$); signposting to sources of support ($p < 0.001$).

3.2. Satisfaction with 'DEALTS2' intervention

At T1, trainer median scores rating satisfaction with the DEALTS2 TTT workshops and the simulation toolkit were no less than 4.0/5.0 across all areas measured (Table 3). Responses from 176 trainers, rated the DEALTS2 workshops as very good ($n = 108$, 61%) or good ($n = 68$, 39%).

Level of satisfaction with the toolkit as a whole and the individual units/modules was maintained from T1 to T2, with median average scores of 4.0/5.0 equating to 'very satisfied'. At T2, trainers ($n = 23$) who rated satisfaction that 'the DEALTS2 toolkit is a useful addition to their dementia training', gave median scores of no less than 4.0/5.0 across all areas measured (Table 4).

3.3. Confidence in using 'DEALTS2' innovative approaches in own dementia training

All trainers who responded to the survey at T2 ($n = 51$) answered the

Table 2
Dementia knowledge scores: pre-test to T1; T1 to T2; pre-test to T2.

Dementia knowledge topic area	Median score			Ranks (pre-test to T1)			Wilcoxon Signed-Ranks test (pre-test to T1)			Mann Whitney U test (T1 to T2)			Mann Whitney U test (pre-test to T2)		
	Pre-test (n = 183)	T1 (n = 183)	T2 (n = 51)	Negative ranks	Positive ranks	Ties	Z	p	Coefficient, r	U	p	Coefficient, r	U	p	Coefficient, r
Risk factors	3.00	4.00	4.00	2	78	103	−8.03	<0.001	−0.42	4078	0.091	−0.11	3490.5	0.002	−0.20
Lifestyle changes to reduce	3.00	4.00	4.00	4	84	95	−8.86	<0.001	−0.46	3801	0.010	−0.17	3348.5	0.001	−0.23
Person-centred approaches	3.00	4.00	4.00	3	81	99	−8.20	<0.001	−0.43	3988.5	0.032	−0.14	3456	0.002	−0.21
Communication and interaction	3.00	4.00	4.00	3	80	100	−8.15	<0.001	−0.43	3901.5	0.011	−0.17	3510.5	0.002	−0.20
Humanised approaches	3.00	4.00	4.00	1	125	57	−10.31	<0.001	−0.54	3610	0.002	−0.20	2826.5	<0.001	−0.30
Signposting to sources of support	3.00	4.00	3.00	4	94	85	−8.29	<0.001	−0.43	3667.5	0.007	−0.18	3401.5	0.001	−0.21

Scale: 1 = none; 2 = very little; 3 = informed; 4 = very informed.
Source: Our research survey.

Table 3
Trainer satisfaction with 'DEALTS2' workshops and simulation toolkit at time of training.

Satisfaction with DEALTS2 workshops and simulation toolkit	Median score (/5)	Percentiles		
		25	50	75
Satisfaction toolkit - risk reduction	4.00	4.00	4.00	5.00
Satisfaction toolkit - person-centred care	5.00	4.00	5.00	5.00
Satisfaction toolkit - communication, interaction and behaviour	5.00	4.00	5.00	5.00
Satisfaction toolkit - full training package	5.00	4.00	5.00	5.00
Value of workshop in meeting tier 2 outcomes - risk reduction	5.00	4.00	5.00	5.00
Value workshop meeting tier 2 outcomes - person-centred care	5.00	4.00	5.00	5.00
Value workshop meeting tier 2 outcomes - communication, interaction and behaviour	5.00	4.00	5.00	5.00
Value workshop meeting tier 2 outcomes - full training package	5.00	4.00	5.00	5.00

Table 4
Trainers satisfaction with 'DEALTS2' simulation toolkit twelve months after attending training.

Satisfaction with DEALTS2 simulation toolkit	Follow up survey – T2 (n = 23/51)					
	Median score (/5)	Percentiles			Valid	Missing
		25	50	75		
The full DEALTS package (4 h)	4.00	3.75	4.00	5.00	10	41
Unit 1: Dementia risk reduction and prevention	4.00	3.00	4.00	4.00	16	35
Unit 2: Person-centred care	4.00	4.00	4.00	5.00	19	32
Unit 3: Communication, interaction and behaviour in dementia care	4.00	4.00	4.00	5.00	19	32
Risk reduction activity 1 (joined up sentences activity and discussion)	4.00	3.00	4.00	5.00	14	37
Risk reduction activity 2 (positive changes to your own practice activity and discussion)	4.50	4.00	4.50	5.00	16	35
Person-centred care activity 1 (3 minute life story activity and discussion)	4.50	4.00	4.50	5.00	16	35
Person-centred care activity 2 (patient, caregiver and observer role play activity and discussion)	4.00	4.00	4.00	5.00	14	37
Communication activity 1 (origami activity and debrief)	4.50	4.00	4.50	5.00	14	37
Communication activity 2 (Gerry Robinson video activity and discussion using humanising values framework)	4.00	3.50	4.00	5.00	13	38

seven questions measuring confidence in using the DEALTS2 innovative approaches in the dementia training delivered in their Trust. Trainers responded 'agree' to six of the seven questions: 'I am confident delivering DEALTS2 training' (median 4.0/5.0, 66.7% (n = 34/51) responded 'strongly agree' or 'agree'); 'I understand the learning needs of those I am training' (median 4.0/5.0, 90.2% (n=46/51) responded 'strongly agree' or 'agree'); 'I am confident in answering questions during the training'(median 4.0/5.0, 78.4% (n=40/51) responded 'strongly agree' or 'agree'); 'I feel that I have the right materials to provide effective training'(median 4.0/5.0, 70.6% (n=/3651) responded 'strongly agree' or 'agree'); 'I feel that I have the right equipment to provide effective training'(median 4.0/5.0, 70.6% (n=36/51) responded 'strongly agree' or 'agree'); 'I feel that the DEALTS2 toolkit is useful for Tier 2 dementia training'(median 4.0/5.0, 70.6% (n=36/51) responded 'strongly agree' or 'agree'); (Table 5). Whilst trainers responded 'neutral' to the remaining question 'my organisation has been supportive in enabling me to deliver DEALTS2 training' (median 3.0/5.0, 43.1% (n = 22/51) responded 'strongly agree' or 'agree').

3.4. Implementation of DEALTS2 across England

At T1 the majority of trainers 75% (n = 137/183) expected to start using the DEALTS2 innovative training approaches in the dementia training delivered in their employing Trust within twelve months of the workshops: 21% (n = 38) within one month; 40% (n = 73) within three months; 11% (n = 21) within six months; and 3% (n = 5) within twelve months. The remaining 25% (n = 46) trainers were unsure about when they would start to use the DEALTS2 in their employing Trust.

Just under half of those who responded at T2 reported currently using the materials 45% (n = 23/51), whilst 55% (n = 28/51) had not used them yet. Of the 23 trainers who stated they were currently using the materials in dementia training, 39% (n = 9) had adapted the simulations to suit the individual needs of their Trust and 61% (n = 14) had made no changes. The total number of staff trained was 1211 and 158 training sessions (Table 6). Of the 28 trainers not using the materials: 57% (n = 16) stated that they intended using the materials in the future, whilst 43% (n = 12) stated no current intention of using them in the future.

4. Discussion

The objective of this paper was to evaluate differences in trainer dementia knowledge scores pre and post training, satisfaction with DEALTS2 TTT workshops and simulation toolkit, confidence to use the innovative training approaches, and spread of implementation. To our knowledge, this study is the first theory and evidence-based dementia education toolkit using innovative simulation-based approaches delivered through a TTT model that has been evaluated nationally across England, capturing the perspectives of trainers implementing the intervention. Other comparable studies have focused on staff perspectives of receiving the intervention (Elvish et al., 2018; Sampson et al., 2017; Wang et al., 2017). Our results show trainer level of dementia knowledge increased after participating in the DEALTS2 TTT workshops (pre-test to T1), and that this increase was retained twelve months later in five of the six topic areas measured (pre-test to T2). This supports the findings of previous studies based on data collected with staff receiving the intervention pre and immediately post training (Elvish et al., 2018) and pre and three months post training (Wang et al., 2017). In our study we followed guidance in recent reviews (Surr and Gates, 2017; Surr et al., 2017) to follow up after longer than three months to ascertain the persistence of practice change; we chose a period of twelve months.

We found a statistically significant increase in trainer dementia knowledge across all six topic areas measured from before attending the DEALTS2 TTT workshops to immediately after (pre-test to T1), with the largest increase in knowledge about the 'humanised approaches to dementia care' topic area. Differences between pre-test to T2 showed a small decrease in trainer knowledge of the 'signposting to support' topic area and a small increase in trainer dementia knowledge across the remaining five topic areas, with the largest increase in knowledge about the 'humanised approaches to dementia care' topic area. Further tests revealed difference after attending the training to twelve months later (T1 to T2), demonstrating a small increase in trainer knowledge of the

Table 5
Trainer confidence in delivering dementia education informed by DEALTS2 materials twelve months after taking part in the Train-The-Trainer workshops (n = 51).

Rate your agreement with the following statements:	Median (/5)	Percentiles			Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
		25	50	75	Number	%	Number	%	Number	%	Number	%	Number	%
a. I am confident delivering DEALTS2 training	4.00	3.00	4.00	4.00	0	0	3	5.9	14	27.5	23	45.1	11	21.6
b. I understand the learning needs of those I am training	4.00	4.00	4.00	5.00	0	0	1	2.0	4	7.8	26	51.0	20	39.2
c. My organisation has been supportive in enabling me to deliver DEALTS2 training	3.00	3.00	3.00	4.00	1	2.0	5	9.8	23	45.1	15	29.4	7	13.7
d. I am confident in answering questions during the training	4.00	4.00	4.00	5.00	2	3.9	1	2.0	8	15.7	22	43.1	18	35.3
e. I feel that I have the right materials to provide effective training	4.00	3.00	4.00	5.00	0	0	8	15.7	7	13.7	21	41.2	15	29.4
f. I feel that I have the right equipment to provide effective training	4.00	3.00	4.00	5.00	2	3.9	5	9.8	8	15.7	21	41.2	15	29.4
g. I feel that the DEALTS2 toolkit is useful for tier 2 dementia training	4.00	3.00	4.00	5.00	0	0	2	3.9	13	25.5	23	45.1	13	25.5

Table 6
Number of staff trained and training sessions delivered informed by DEALTS2 innovative approaches, twelve months after training.

Number of staff trained using DEALTS2 innovative training approaches (T2)					
	Less than 25 staff (n = 1–25)	Between 26 and 50 staff (n = 26–50)	Between 51 and 100 staff (n = 51–100)	More than 200 staff (*n* = 200)	Total
Number of participants responded	7	9	5	2	23
Mean number of staff trained	13	38	76	200	n/a
Total (=number of participants responded × mean number of staff trained)	91	342	378	400	1211

Number of training sessions delivered using DEALTS2 innovative training approaches (T2)				
	Less than 5 sessions (n = 1–5)	Between 5 and 15 sessions (n = 5–15)	Between 16 and 30 sessions (*n* = 16–30)	Total
Number of participants responded	14	7	2	23
Mean number of training sessions delivered	3	10	23	n/a
Total (=number of participants responded × mean number of training sessions delivered)	42	70	46	158

lifestyle changes', 'communication and interaction' and 'humanised approaches' topic area; no change in trainer knowledge about the 'risk factors' and 'person-centred care' topic areas; and a small decrease in knowledge about 'signposting to support'. Collectively, this indicates that trainers had gained much of their new knowledge from the part of training focused on the underpinning theory, the Humanising Values Framework (Todres et al., 2009). This supports guidance set out in a previous review which advocates underpinning practice-based learning with theory (Surr et al., 2017).

Immediately after the training (T1), trainers were satisfied with the DEALTS2 workshops and simulation toolkit, and this level of satisfaction remained amongst those who were using the innovative training approaches twelve months later (T2). This supports the findings of a previous study with similar results from the staff receiving the intervention (Wang et al., 2017). Our results show that the DEALTS2 intervention was effective in increasing trainer confidence to utilise innovative training approaches. Twelve months after the training (T2), two thirds of trainer (66.7%) reported feeling confident delivering DEALTS2 informed dementia training in their Trust, although less than half (43.1%) felt confident that they would be supported by their organisation to deliver DEALTS2 informed dementia training. Moreover, we identified good adherence rates, with approximately half of trainers (45%, $n = 23/51$) reporting using the innovative training approaches within twelve months of attending the DEALTS2 TTT workshops. These trainers reported delivering DEALTS2 informed dementia training to more than one thousand two hundred members of staff ($n = 1211$). Similar studies vary in the numbers of staff they report receiving training ($n = 2020$ (Sampson et al., 2017), ($n = 607$ Elvish et al., 2018), ($n = 170$ Wang et al., 2017). Yet these previous studies do not always report on the timeframe that training was delivered and/or the number of trainers delivering the interventions, making detailed comparisons impossible.

4.1. Study strengths and limitations

Strengths of this study include the iterative approach used to develop the DEALTS2 intervention enabling feedback to inform content development (Heward et al., 2019) and the DeTDAT (Dementia Training Design and Delivery Audit Tool DeTDAT v4 Auditors Manual) review ensuring that the good practice criteria was met (Surr and Gates, 2017; Surr et al., 2017). We argue that exploring the perspectives of the trainers delivering the intervention through quantitative and qualitative methods is pivotal in understanding the factors that lead to the successful implementation and the resulting impact on practice. This may be an important dynamic in the efficacy of any training programme, in addition to the perspectives of staff receiving training from the trainers, which we plan to report in a separate paper. Previous studies delivering dementia education in acute care using a TTT model, have been conducted regionally involving three (Elvish et al., 2018) or eight (Sampson et al., 2017) NHS Trusts in the UK; and in fourteen community health centres in China (Wang et al., 2017). Therefore the national scale of this study means that the results provide new evidence based on a sample from across England; contributing to wider debates about efficacy and impact of dementia education and training in acute care settings (Scerri et al., 2017; Smith et al., 2019; Surr and Gates, 2017; Surr et al., 2017, 2020a, 2020b). As such our results will be of interest to those involved internationally in dementia education, as well as those more broadly engaged in healthcare workforce development.

We have reported quantitative results which demonstrate that DEALTS2 improving trainer's dementia knowledge and confidence. Further qualitative research will explore trainers' experiences and perceptions of DEALTS2, including implementation barriers and enablers and impact on practice. We acknowledge the limitations of using self-reported instruments, including how scores rely on the accuracy of participants insights (Fryer and Dinsmore, 2020). Additionally, some of our interpretations are based on results from a quarter of the original sample of trainers (26% or $n = 51/199$). In terms of recruitment, trainers were approached via regional Dementia Leads and this is a potential limitation of the study as engagement from each of the HEE regions across England differed and we are unsure of the factors that influenced this. Despite this though the DEALTS2 TTT workshops were well attended with representation from each of the twelve regions recruiting.

Communication with trainers who participated in the DEALTS2 TTT workshops was conducted by email. We were mindful not to overwhelm trainers when asking them to complete the follow up survey and so ensured that we only sent reminder emails to those who had not yet responded, up to a maximum of four times over as many weeks; after that the survey was closed. Trainers were asked to email the research team with questions about implementation of DEALTS2, yet we only received a couple of emails from trainers about this. On reflection, we could have offered additional implementation support through a different approach. Future studies could consider other approaches such as using social media to develop communities of practice to encourage trainers to become part of a regional network providing support and guidance where appropriate.

5. Conclusions

This paper provides evidence that the DEALTS2 dementia education intervention effectively increased trainer dementia knowledge and confidence to utilise innovative dementia training approaches. The results show good adherence rates, with approximately half of trainers reporting using the innovative approaches within twelve months of attending the DEALTS2 TTT workshops. Yet the quantitative data lacks deeper understanding of implementation barriers and enablers, particularly the cultural impact on behaviour change of some trainers not feeling supported by their organisation to deliver DEALTS2 informed dementia training. To identify the factors that determine successful implementation of DEALTS2, further qualitative research will explore trainer experiences of implementation alongside staff perspectives of receiving the intervention and the resulting changes to practice.

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Ethical approval

Ethical approval was obtained from Bournemouth University Research Ethics Committee prior to the start of data collection (Reference ID 17647). Principles of informed consent, voluntary participation, the right to withdraw, confidentiality and anonymity were adhered to. Surveys contained a short overview about the study. Completing a survey indicated agreement to participate and for anonymised data to be included. To ensure anonymity and confidentiality no identifying information was stored about participants with surveys.

CRediT authorship contribution statement

Michelle Heward: Conceptualization, Data Curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Visualization, Resources, Writing - Original Draft.

Michele Board: Conceptualization, Funding acquisition, Resources, Writing - Review & Editing.

Ashley Spriggs: Conceptualization; Funding acquisition, Resources, Writing - Review & Editing.

Laurie Emerson: Data Curation, Formal analysis, Investigation, Visualization, Writing - Review & Editing.

Jane Murphy: Conceptualization, Funding acquisition, Project administration, Supervision, Writing - Review & Editing.

Declaration of competing interest

None declared.

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Appendix A. Supplementary data

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