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Impact of dementia education and training on health and social care staff knowledge, attitudes and confidence: a cross-sectional study

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ABSTRACT

Objectives The aim of this study was to establish the impact of dementia education and training on the knowledge, attitudes and confidence of health and social care staff. The study also aimed to identify the most effective features (content and pedagogical) of dementia education and training.

Design Cross-sectional survey study. Data collection occurred in 2017.

Settings Health and social care staff in the UK including acute care, mental health community care trusts, primary care and care homes.

Participants All health and social care staff who had completed dementia education and training meeting the minimal standards as set by Health Education England, within the past 5 years were invited to participate in an online survey. A total of 668 health and social care staff provided informed consent and completed an online survey, and responses from 553 participants were included in this study. The majority of the respondents were of white British ethnicity (94.4%) and identified as women (88.4%).

Outcomes Knowledge, attitude and confidence of health and social care staff.

Results Hierarchical multiple regression analysis was conducted. Staff characteristics, education and training content variables and pedagogical factors were found to account for 29% of variance in staff confidence (F=4.13, p<0.001), 22% of variance in attitude (knowledge) (F=3.80, p<001), 18% of the variance in staff knowledge (F=2.77, p<0.01) and 14% of variance in staff comfort (attitude) (F=2.11, p<0.01).

Conclusion The results suggest that dementia education and training has limited impact on health and social care staff learning outcomes. While training content variables were important when attempting to improve staff knowledge, more consideration should be given to pedagogical factors when training is aiming to improve staff attitude and confidence.

Strengths and limitations of this study

► This study explores the impact of a diverse range of dementia education and training packages.
► The study explores the impact of pedagogical factors as well as content-based variables.
► The sample of health and social care professionals included in this study is not representative of the dementia care workforce in the UK.
► The cross-sectional design of the study limits inferences with regard to the impact of dementia education and training on staff learning outcomes.

BACKGROUND

There are approximately 50 million people living with dementia worldwide and this is set to increase to 75 million by 2030 and 131.5 million by the year 2050.[1] This increase in the number of people living with dementia is primarily thought to be due to improving healthcare. Better healthcare has led to an increased life expectancy, therefore there is a greater proportion of older people worldwide. The rising number of people affected by dementia and the increasing cost have led to a number of countries developing national dementia strategies. These strategies include the need for a health and social care workforce that is appropriately trained and skilled to deliver good dementia care.

Within the UK, there are currently 850 000 people living with dementia, with the cost of care predicted to be £26 billion.[2] Research estimates that in England up to 40% of patients in hospitals are living with dementia[3] and up to 80% of residents in care homes are living with dementia.[4] Inadequate and poor care leads to a reduced quality of life for people living with dementia and a higher overall cost to the National Health Service, due to avoidable hospital admissions[5] and longer hospital stays. Therefore, a key feature of English National Dementia Strategies[6–8] is the focus on dementia education and training for the health and social care workforce, in order to deliver good person-centred care. The 'dementia workforce' is defined as any individual who may have contact with people

living with dementia in health and social care settings from the point of diagnosis to end-of-life care. The need for a clear evidence base for effective features of dementia education and training for health and social care staff has also been identified.[8]

As part of a national programme of work around implementation of quality dementia education and training, Health Education England developed a Dementia Training Standards Framework[9] (the 'Framework' hereafter). This set the 'gold standard' for training content, with regard to identifying the knowledge and skills needed to deliver good dementia care. It is comprised of three tiers. Tier 1 is 'Dementia Awareness' and is to be completed by all staff working in any post in health and social care. Staff with regular contact with people with dementia complete tier 2 training, and tier 3 provides advanced skills for leaders in dementia care. The Framework consists of 14 subjects in total. Each subject comprises of several learning outcomes that staff are required to accomplish in order to deliver good quality and effective dementia care. While the Framework provides comprehensive guidance for key content for dementia education and training, it does not take into account pedagogical considerations of training.

There has been a growing body of research exploring the impact of dementia education on staff knowledge and skills. Some studies[10–17] have demonstrated that dementia education and training can improve staff knowledge and confidence, foster positive attitudes and produce better outcomes for people living with dementia. In contrast, some studies have demonstrated that dementia training lacks efficacy and has no impact on staff or patient outcomes.[18–20] A recent review by Surr et al[21] identified 152 studies exploring the impact of dementia education and training. The findings of this comprehensive review suggest that dementia education can be efficacious if pedagogical factors are considered. The review suggests that training and education was found to be most effective if staff considered the training to be relevant to their role, involved active face-to-face participation, underpinned practice-based learning with theory, the training was delivered by an experienced facilitator, was at least 8 hours in duration and provided structured guidelines for care practice. The review highlights that the dementia workforce is diverse and has heterogeneous training and education needs. This makes identifying effective training components highly complex. Previous studies (with the exception of Jack-Waugh et al) exploring the impact of dementia education and training have primarily focused on a single-training programme with limited focus on pedagogical considerations, and with a select group of health and social care staff.

The aim of this study is to explore the impact of dementia education and training on health and social care staff in the UK and to identify the most effective features (content and pedagogical) and other factors of dementia training. It aimed to include a diverse range of dementia education and training packages and staff working across different service settings that provide dementia care.

METHOD
Study design
This study is a survey-based cross-sectional observational study.

Setting
This study was conducted in England. Data collection occurred in 2017 via an online survey completed by health and social care (working in acute care, community mental healthcare trust, primary care, pharmacies and care homes) staff.

Procedure
An audit of dementia education and training in England was conducted in 2017 to establish if current training programmes met the learning outcomes set out by Health Education England's Dementia Training Standards Framework. The findings of the audit are described by Smith et al.[22] In total 614 respondents (care providers, training providers and commissioners) reported on 382 training packages in the audit, 183 respondents reported one or more packages that met the criteria for being a package of interest. These 183 respondents were asked to circulate an invite to an online staff survey measuring knowledge, attitudes and confidence, to all participants that had completed the training package(s) of interest they had reported. The survey was administered using a web-based tool, SNAP (see https://www.snapsurveys.com/), which enables surveys to be individualised, which allowed the names of the specific packages of interest to be added to the survey distributed by each audit respondent. The survey was promoted by including university and Health Education England logos on the invite and survey, clearly defined completion times, follow-up emails and an offer of a prize draw entry.

Participants
All health and social care staff, who had completed one of the training packages of interest in the past 5 years and who were still contactable by the audit respondents, were approached to participate. Survey participants were required to be 18 years or over, and be able to read and write in English. No other eligibility criteria were applied.

Measures
The survey comprised of questions concerning:
► Staff characteristics (gender, age, ethnicity, length in role, job role).
► Reaction to each training course completed, measured on a 5-point Likert scale (1=strongly disagree to 5=strongly agree), with a high score indicating a positive reaction.
1. Satisfaction (How satisfied were you with the training you received?)
2. Relevance (How relevant was the training to your role/training needs?)
3. Understanding (How easy was the material to understand?)

4. Recommendation (How likely are you to recommend the training to colleagues?)

Measures of staff knowledge, attitudes and confidence were selected on the basis that the scales had previously demonstrated good validity and reliability.

► Knowledge in dementia scale.[23] This measure of knowledge about dementia contains 16 items which respondents categorise as True, False, or Don't know (scored as 0.5). The scale has been demonstrated to have satisfactory internal reliability with Cronbach alpha of 0.72 reported. Possible scores range from 0 to 21.

► The Dementia Attitudes Scale.[24] This attitude scale consists of two subscales: dementia knowledge (eg, people with dementia can enjoy life) and comfort (eg, I feel confident around people with dementia), each containing 10 items. Both subscales have been reported to have good internal reliability with Cronbach alphas reported as 0.83 and 0.85, respectively. The items are rated on a 7-point Likert scale. Possible scores range from 10 to 70 for each subscale.

► The Confidence in Dementia Scale.[23] This is a 9-item scale assessing staff confidence in providing care to people with dementia. The items are measured on a 5-point Likert scale and have been found to demonstrate excellent internal reliability with a Cronbach alpha of 0.9. Possible scores range from 9 to 45.

Data analysis

SPSS V.22 was used to analyse all quantitative data. Descriptive statistics were produced for demographic data and staff outcomes of knowledge, attitudes and confidence. Hierarchical regression analysis was performed to examine the amount of variance in staff outcomes explained by contextual factors and training. Dummy variables were created for categorical variables (such as staff role) before being entered into the regression model. Where there were adequate numbers of responses in relation to training packages, these packages were included in the regression analyses. The training packages were recategorised and new variables created based on number of learning outcomes, number of subjects, tier level (1–3) and whether the training covered specific subjects. Of the 14 different subject areas included in the Framework, only one (pharmacological interventions), was not covered by at least one of the included training packages. A sample size estimation was calculated using recommendations by Tabachnick et al[25] which state the formula $50+8m$ whereby m is the number of independent variables. A total of 36 independent variables were created suggesting a sample size of 338 would be sufficient for hierarchical regression. Preliminary analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity. The variables were entered into the hierarchical regression model in the following three steps:

Step 1: staff characteristics including, gender, age, ethnicity, staff role and length of time in role.

Step 2: pedagogical variables including duration of training, mode of delivery, when completed, where completed and number of training courses completed.

Step 3: content variables including training tier, number of learning outcomes, number of subjects and subject areas covered.

Patient and public involvement

Patient and public involvement (PPI) was an important aspect of this study and considered to be experts by experience,[26] who were involved from the conception and design of the study to dissemination of the outcomes. The core PPI group consisted of three people living with dementia and eight family members, and met 15 times over the lifetime of the study. Throughout the study, as recommended by Mathie et al[27] and Ocloo and Matthews,[28] there was a particular emphasis on the active involvement of experts by experience, particularly in aspects of the research process which are less frequently seen in PPI, such as design, data collection and analysis. Within the work package reported in this article, experts by experience took active part in the following aspects: designing survey materials, ensuring appropriate language was used and interpretation of the findings.

RESULTS

Participants

A total of 668 participants who had participated in at least one of the training packages of interest, completed the survey, representing 60 training packages in total. Due to a low response rate for some packages, to permit robust analysis, only packages with 10 or more respondents were included in subsequent data analysis. This resulted in 18 dementia education and training packages with a total of 553 respondents being included in the final sample. Approximately 88.4% of the sample identified as women and 94.4% as white British. Further staff characteristics are presented in table 1.

Of the 18 packages included in the analysis, 16 were delivered as face to face (of which one incorporated e-learning, three included mentoring and one used simulation). One training package was delivered solely as an e-learning package and one as simulation-based learning. Six of the packages were categorised as tier 1, 10 were tier 2 and 2 were tier 3. All packages met at least 75% of learning outcomes set out in the 'Framework'. The most popular subjects covered by the training packages were person-centred dementia care (15) and communication, interaction, and behaviour in dementia care (15), followed by dementia awareness (11), living well with dementia and promoting independence (8), law, ethics and safeguarding (6), families and carers as partners in dementia care (4), dementia identification, assessment and diagnosis (3), health and well-being in dementia care (3), equality, diversity and inclusion in dementia care (2), dementia risk reduction and prevention (1), end-of-life dementia care (1), research and evidence-based

Table 1 Demographic characteristics of health and social care staff included in the study

Characteristic	Subcharacteristic	N	Percentage
Gender	Male	63	11.39
	Female	489	88.4
Ethnicity	White British	552	94.4
	Pakistani	2	0.4
	Indian	5	0.9
	Black African/Caribbean	6	1.1
	Mixed ethnicity	7	1.3
	Arab	1	0.2
	Not stated	4	0.7
Age (years)	18–24	27	4.9
	25–29	42	7.6
	30–34	45	8.1
	35–39	55	9.9
	40–44	60	10.8
	45–49	89	16.1
	50–54	102	18.4
	55–59	87	15.7
	60–64	29	5.2
	65 and over	15	2.7
Role	Ancillary/clerical	39	7.1
	Unqualified clinical/care	108	19.5
	Qualified clinical	194	35.1
	Unit/facility manager	26	4.7
	Senior manager	65	11.8
	Other	121	21.9
Time in role	Less than 1 year	15	2.7
	1–2 years	45	8.1
	3–4 years	50	9
	5–9 years	94	17
	10–19 years	141	25.5
	20 years and over	197	35.6

dementia care (1), leadership in transforming dementia care (1), and finally no package included the subject of pharmacological interventions in dementia care.

Impact of training on staff confidence

With regard to staff confidence, scores ranged from 11 to 45 (highest possible score is 45), with an average score of 35.31 (SD=7.64). The final hierarchical model (F=4.13, p<0.001) accounted for 29% of the variance in staff confidence. Pedagogical factors accounted for 11%, staff characteristics accounted for 10% of the variance and content variables accounted for 8% of the variance in staff confidence. Only staff characteristics were found to significantly determine variance in staff confidence. Those

who were older in age, had more than 1-year experience and were either clinical (qualified or non-qualified) or management level staff were more likely to have high levels of staff confidence. Staff confidence hierarchical regression results are presented in table 2.

Impact of training on attitudes (knowledge)

Participant scores ranged from 12 to 56 (highest score possible is 70) with regard to the knowledge subscale from the O'Connor Attitude Measure, with an average score of 51.68 (SD=5.08). The final hierarchical regression model accounted for 22% of the variance in staff attitudinal knowledge (F=3.80, p<0.01). Content variables accounted for 11% of the variance, pedagogical variables accounted for 8% and staff characteristics accounted for 3% of the variance in staff attitudinal knowledge. Similar variables accounted for a significant amount of variance in staff attitudinal knowledge as they did factual knowledge: older age, having more than 2 years of experience in role, face-to-face delivery of training, mentoring, simulation-based training and completion of tier 2 training. Again, those who had completed health and well-being, and families and carers as partners in dementia care accounted for lower levels of staff attitudinal knowledge. Attitudinal knowledge hierarchical regression results are presented in table 3.

Impact of dementia training on staff knowledge

The knowledge scores for the overall sample ranged from 7.5 to 16 (out of a potential score of 21) and the average score achieved was 13.80 (SD=1.86). The final hierarchical model accounted for 18% of the variance in staff knowledge (F=2.77, p<0.01). That is only 18% of staff knowledge is accounted for by the variables entered into the model. Content variables accounted for 8%, staff characteristics accounted for 6% of the variance, pedagogical variables accounted for 4% of the variance in staff knowledge. An examination of the coefficients suggests older age and having more than 2 years of experience in role were variables that accounted for a significant amount of variance in staff knowledge. Having completed either face-to-face delivery of training, e-learning or simulation-based training, training which covered a higher number of learning outcomes across the Framework, and completion of tier 1 training had a larger impact on staff knowledge. Interestingly those who had only completed subjects covering health and well-being, and families and carers as partners in dementia care had lower levels of staff knowledge. Those who had completed leadership subjects in addition to other subjects demonstrated higher levels of knowledge. Knowledge hierarchical regression results are presented in table 4.

Impact of training on attitudes (staff comfort)

Attitude (with regard to comfort levels) scores ranged from 12 to 56 (highest possible score is 70) with an average score of 51.51 (SD=5.08). The final hierarchical regression model (F=2.11, p<0.01) accounted for 14%

Table 2 Summary of hierarchical regression to establish impact of staff characteristics, training content and pedagogical factors on staff confidence

Variables	B	SE	Beta (standardised)	P value
Female	1.588	0.974	0.068	0.104
Age	−0.405	0.157	−0.124	0.010
Ethnicity (white British)	−0.068	0.195	−0.014	0.729
Less than 1-year experience	−3.991	1.965	−0.089	0.043
1–2 years	−1.906	1.340	−0.071	0.156
3–4 years	−2.027	1.270	−0.078	0.111
5–9 years	−0.533	0.999	−0.027	0.594
10 plus years	−0.213	0.842	−0.012	0.801
Role: ancillary	−3.823	1.349	−0.133	0.005
Role: clinical	0.852	0.934	0.045	0.362
Role: manager	1.606	1.569	0.044	0.307
Role: senior manager	−0.209	1.121	−0.009	0.853
Role: other	−2.317	0.953	−0.127	0.015
Course length	0.012	0.029	0.021	0.688
Face-to-face learning	1.547	8.071	0.049	0.848
E-learning	4.581	4.626	0.144	0.323
Mentoring	1.861	1.578	0.105	0.239
Simulation	4.508	3.418	0.290	0.188
Completion: 1–2 years ago	0.416	0.714	0.026	0.560
More than 3 years ago	−0.442	1.350	−0.014	0.743
Number of courses	0.860	0.863	0.056	0.319
Number of learning outcomes	0.015	1.165	0.001	0.990
Number of subjects	0.113	0.127	0.381	0.371
Tier	−1.617	2.326	−0.381	0.487
Awareness	−1.465	4.775	−0.099	0.759
Diagnosis	−0.151	6.105	−0.010	0.980
Communication	4.147	7.355	0.153	0.573
Health and well-being	0.158	2.956	0.006	0.957
Living well with dementia	−2.670	4.961	−0.101	0.591
Families	0.437	7.181	0.028	0.951
Equality	−6.774	4.572	−0.289	0.139
Law	5.218	8.768	0.131	0.552
Leadership	0.972	2.726	0.048	0.722

of the variance in how comfortable staff perceived themselves to be in delivering dementia care. Pedagogical variables accounted for 7%, content variables accounted for 4% of the variance and staff characteristic accounted for 3% of the variance in staff comfort levels. Significant determinants of staff comfort included: ethnicity (being white British), face-to-face delivery of training, e-learning, number of courses attended and completion of tier 3 training. Those who had completed health and well-being training again had lower levels of comfort, however, those who had completed equality and diversity training were found to have higher levels of comfort. Attitude

(comfort) hierarchical regression results are presented in table 5.

DISCUSSION

The purpose of this study was to establish the impact of dementia education and training on the knowledge, attitudes and confidence of health and social care staff. The findings suggest that dementia education and training in general has limited impact on the knowledge, attitudes and confidence of health and social care staff. Although the final regression models including staff characteristics,

Table 3 Summary of hierarchical regression to establish impact of staff characteristics, training content and pedagogical factors on staff knowledge (attitude subscale)

Variables	B	SE	Beta (standardised)	P value
Female	1.047	0.705	0.065	0.138
Age	−0.236	0.114	−0.105	0.038
Ethnicity (white British)	−0.024	0.141	−0.007	0.866
Less than 1-year experience	−3.637	1.421	−0.117	0.011
1–2 years	−2.010	0.970	−0.108	0.039
3–4 year	−0.871	0.919	−0.048	0.344
5–9 years	−0.337	0.723	−0.024	0.641
10 plus years	−1.008	0.609	−0.084	0.099
Role: ancillary	0.926	0.976	0.047	0.343
Role: clinical	0.556	0.675	0.042	0.411
Role: manager	1.391	1.135	0.056	0.221
Role: senior manager	0.121	0.811	0.008	0.881
Role: other	−0.701	0.690	−0.055	0.310
Course length	−0.014	0.021	−0.037	0.505
Face-to-face learning	12.535	5.837	0.570	0.032
E-learning	1.667	3.346	0.076	0.619
Mentoring	3.293	1.141	0.269	0.004
Simulation	12.247	2.472	1.139	0.000
Completion: 1–2 years ago	−0.587	0.517	−0.052	0.257
More than 3 years ago	0.353	0.976	0.017	0.718
Number of courses	0.869	0.624	0.082	0.165
Number of learning outcomes	−0.131	0.842	−0.011	0.876
Number of subjects	0.115	0.092	0.558	0.211
Tier	−1.078	1.682	−0.367	0.522
Awareness	−8.951	3.454	−0.877	0.010
Diagnosis	4.185	4.416	0.395	0.344
Communication	8.549	5.319	0.456	0.109
Health and well-being	−2.785	2.138	−0.162	0.193
Living well with dementia	−13.959	3.588	−0.761	0.000
Families	3.542	5.194	0.332	0.496
Equality	−10.931	3.307	−0.675	0.001
Law	−2.710	6.342	−0.098	0.669
Leadership	2.341	1.971	0.166	0.236

pedagogical factors and training content variables were statistically significant, they accounted for less than 30% of the variance in staff outcomes, suggesting other factors beyond dementia education and training have greater impact on staff knowledge, attitudes and confidence. The literature suggests there are a range of factors that may also influence staff feelings of confidence and competence to deliver dementia care, these include (1) organisational climate and factors[29] for example, the provision of practical support to implement care practices,[30 31] promotion of staff autonomy and trust,[30] and how the organisation supports implementation of training into practice and the delivery of good dementia care;[32] (2)

individual factors[29] for example staff burnout[30] and staff attitudes (more positive attitude and intentions to implement person-centred care lead to greater confidence).[33]

The final models indicated that experience was an important influencing factor, with older staff age and longer time in role, being important determinants of staff knowledge, attitudes and confidence. With regard to pedagogical factors, training courses that made use of face-to-face teaching, with a combination of simulation-based learning or e-learning, were the most likely to have an impact on staff outcomes. Training content (learning outcomes) was found to have limited impact on staff outcomes, completion of tier 1 dementia education

Table 4 Summary of hierarchical regression to establish impact of staff characteristics, training content and pedagogical factors on staff knowledge

Variables	B	SE	Beta (standardised)	P value
Female	0.368	0.262	0.063	0.161
Age	−0.125	0.042	−0.154	0.003
Ethnicity (white British)	−0.011	0.052	−0.009	0.839
Less than 1-year experience	−1.147	0.528	−0.102	0.030
1–2 years	−1.272	0.360	−0.190	0.000
3–4 year	−0.174	0.341	−0.027	0.610
5–9 years	−0.472	0.269	−0.095	0.079
10 plus years	−0.534	0.226	−0.124	0.019
Role: ancillary	0.031	0.363	0.004	0.932
Role: clinical	0.099	0.251	0.021	0.692
Role: manager	0.391	0.422	0.043	0.354
Role: senior manager	0.053	0.301	0.009	0.860
Role: other	−0.209	0.256	−0.046	0.416
Course length	0.002	0.008	0.016	0.779
Face-to-face learning	−5.640	2.169	−0.712	0.010
E-learning	2.489	1.243	0.314	0.046
Mentoring	−0.056	0.424	−0.013	0.896
Simulation	3.461	0.919	0.893	0.000
Completion: 1–2 years ago	−0.118	0.192	−0.029	0.540
More than 3 years ago	0.567	0.363	0.074	0.119
Number of courses	−0.151	0.232	−0.040	0.514
Number of learning outcomes	0.003	0.313	0.001	0.991
Number of subjects	0.071	0.034	0.956	0.038
Tier	−0.984	0.625	−0.930	0.116
Awareness	−4.377	1.283	−1.190	0.001
Diagnosis	2.493	1.641	0.653	0.129
Communication	−0.510	1.977	−0.076	0.796
Health and well-being	0.651	0.794	0.105	0.413
Living well with dementia	−4.510	1.333	−0.682	0.001
Families	2.932	1.930	0.763	0.129
Equality	−2.896	1.229	−0.496	0.019
Law	−4.350	2.356	−0.438	0.066
Leadership	1.205	0.733	0.237	0.101

and training was most impactful for staff knowledge as measured by the KIDE,[23] tier 2 training was most impactful on staff attitudes and tier 3 was associated with greater staff confidence. This suggests the 'tiers' are fulfilling their goals with higher learning leading to reflection, attitudinal change and confidence. The results also suggest that while training content variables such as learning outcomes are important when attempting to improve staff knowledge, more consideration should be given to pedagogical factors when training is aiming to improve staff attitude and confidence.

Smith et al[22] report that approximately 70% of dementia education and training programmes meet only the tier

1 learning outcomes as set out by Dementia Core Skills Framework,[9] and less than 40% met the requirements for tier 2 and tier 3. The findings from the current study suggest that tier 2 and tier 3 training is required to develop a dementia care workforce that fosters positive attitudes and is confident in providing high-quality dementia care. However, this may also be confounded by experience and contact with people living with dementia. That is the positive attitude and confidence may be due to experience as opposed to the level of training.

The findings of this study echo findings of previous studies reporting some positive but limited impact of dementia education and training on staff outcomes.[10–17]

Table 5 Summary of hierarchical regression to establish impact of staff characteristics, training content and pedagogical factors on staff comfort (attitude subscale)

Variables	B	SE	Beta (standardised)	P value
Female	−0.792	0.810	−0.045	0.328
Age	0.017	0.130	0.007	0.896
Ethnicity (white British)	0.369	0.162	0.105	0.023
Less than 1-year experience	1.368	1.632	0.040	0.403
1–2 years	−0.289	1.114	−0.014	0.795
3–4 year	−0.920	1.055	−0.047	0.384
5–9 years	−0.031	0.830	−0.002	0.970
10 plus years	−0.572	0.700	−0.044	0.414
Role: ancillary	−0.160	1.121	−0.007	0.887
Role: clinical	−0.305	0.776	−0.021	0.694
Role: manager	−1.040	1.304	−0.038	0.425
Role: senior manager	−0.544	0.932	−0.031	0.560
Role: other	0.822	0.792	0.060	0.300
Course length	−0.007	0.024	−0.016	0.779
Face-to-face learning	−16.595	6.706	−0.693	0.014
E-learning	−7.606	3.844	−0.317	0.048
Mentoring	1.597	1.311	0.120	0.224
Simulation	−3.883	2.840	−0.331	0.172
Completion: 1–2 years ago	0.790	0.593	0.064	0.184
More than 3 years ago	0.000	1.122	0.000	1.000
Number of courses	−1.111	0.717	−0.096	0.122
Number of learning outcomes	2.333	0.968	0.186	0.016
Number of subjects	−0.165	0.105	−0.736	0.118
Tier	2.107	1.932	0.659	0.276
Awareness	10.642	3.968	0.957	0.008
Diagnosis	−4.585	5.073	−0.397	0.367
Communication	6.454	6.111	0.316	0.291
Health and well-being	−3.009	2.456	−0.161	0.221
Living well with dementia	11.148	4.122	0.558	0.007
Families	−8.726	5.967	−0.751	0.144
Equality	0.868	3.799	0.049	0.819
Law	15.096	7.286	0.502	0.039
Leadership	−2.011	2.265	−0.131	0.375

However, much past research has focused on specific training programmes with an emphasis on the learning outcomes of the training programme. While the current results suggest that there was a limited impact on staff outcomes as a result of training, this may be due to the included training programmes being primarily focused on learning outcomes and subjects rather than on pedagogical factors. The results suggest that for training to be impactful beyond staff knowledge development, pedagogical factors, such as mode of delivery, need to be considered. The results demonstrate that the most impactful training programmes were those that were delivered face to face with some form of simulation-based learning, mentoring and or e-learning. These findings are in-line with those reported by Surr *et al*[21] in their systematic review. The review highlighted that the most effective dementia education and training packages were those that were delivered face to face by an experienced trainer, included practice-based learning underpinned by theory and clear guidelines for clinical practice. The review highlighted the difficulty of establishing a single effective training programme for a diverse care workforce. We echo those observations as the current findings suggest that diverse pedagogical and subject content factors were of importance for staff at varying levels of experience.

The findings of the current study should be interpreted with caution. The main limitation of the study is the homogeneous staff sample who were mainly older, white British women, who had worked in clinical roles for over 10 years. This limits the generalisability of the findings to the dementia care workforce, who are considered to be heterogeneous. The survey had a low response rate which may have been due to organisations not being able to reach relevant staff, due to staff either moving away or the organisation not keeping a record of who had completed the training. The survey was only available in the English language and was also reported to be lengthy to complete, potentially further limiting responses from participants from diverse backgrounds. The survey used measures that had previously been used within specific settings such as acute care. This may have had an impact on the results but it is worth noting that the measures continued to demonstrate good reliability despite being used in diverse settings. Furthermore, the design of the study limited the possibilities of controlling for all possible confounding factors, due to a small sample size and a large number of independent variables. It was not possible to explore interactional effects via structural equation modelling or multilevel modelling due to the limited sample of respondents. Findings related to impact on staff confidence should also be interpreted with caution as a ceiling effect was observed. A further limitation is that we were unable to obtain collection of outcome data pre-training and post-training and therefore, it is not possible to determine whether staff knowledge, attitudes and skills were a direct result of attendance at the reported dementia education or training programme.

Despite the above limitations, a large enough sample of staff was recruited to explore the impact of training and the features of impactful training. The findings have clear implications for all health and social care staff who are required to undergo some form of dementia education and training. The study also has implications for policymakers and training commissioners. It is a requirement of the National Dementia Strategy[6] to develop an informed dementia care workforce. This study suggests that training providers and commissioners need to move beyond subject learning outcomes and also consider pedagogical factors and depth of education to have a truly significant impact on staff attitudes and confidence. Further research is required to establish the specific needs of distinct health and social care staff for example the training needs of working in acute hospital care will differ from those working in care home settings. A targeted approach is required whereby healthcare professionals have access to strong tier 2 and tier 3 training which is relevant to their role.

In general, the findings of this study suggest that currently dementia education and training has some limited impact on the knowledge, attitudes and confidence of health and social care staff. The pedagogical factors of training such as mode of delivery are important in ensuring training is effective in changing attitudes and confidence as well as staff knowledge. Dementia education and training providers/commissioners should consider staff characteristics and pedagogical factors as well as subject content/learning outcomes when providing dementia education and training to the dementia care workforce.

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