

The Biopsychosocial model of dementia: its use in  
clinical practice. A pilot study.

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**UCL Doctorate in Clinical Psychology**

**Thesis declaration form**

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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## Overview

This thesis focuses on assessing the impact of training interventions for staff working in dementia care. It begins with a review of the literature on training residential care home staff. The review examines 19 articles evaluating training programmes across a broad range of topics, aiming to explore their impact on a number of outcomes for staff, including psychological well-being and job satisfaction and assessing which interventions had the greatest impact.

The literature review is followed by an empirical paper piloting the feasibility of a staff training intervention based on the Biopsychosocial model of dementia (Spector & Orrell, 2010). It examines whether training staff working across a range of settings can improve their ability to understand, formulate and develop interventions for people with dementia. It also assesses the impact of training on staff attitudes and sense of competence.

The empirical paper is followed by a critical appraisal of the work. The appraisal discusses differences in the way training was received across different staff settings in the context of theory and considerations for its future use. It also discusses the experience of training in residential care homes, as well as reflections on the process of evaluating a theoretical model in clinical practice.

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## Part 1: Literature Review

Understanding the impact of training for staff working in dementia care: A review of the literature.



## Abstract

**Background:** Caring for people with dementia can be an emotionally challenging task and it is often linked with low job satisfaction and burnout amongst care staff. Training care home staff is a potentially valuable intervention in improving staff well-being and ensuring they are equipped to provide the best possible care for people with dementia. This review aimed to establish the impact of training on staff and to assess which interventions had the greatest influence. It also aimed to explore the influence of training intensity and potential barriers to its success.

**Method:** A database search of studies evaluating staff training interventions in dementia care was conducted. The search revealed 207 papers, 188 of which were subsequently excluded based on pre-specified criteria. Nineteen studies were included in the review and synthesised using a quality rating tool designed for use with a range of study designs.

**Results:** Overall the studies were found to be of variable quality. Sixteen studies found a significant change following training in at least one staff domain. Three studies did not find training to have a significant impact.

**Conclusion:** The evidence suggests that training staff can be an effective method of improving staff well-being. Programmes helping staff to manage challenging behaviour appear to be the most beneficial, although further research is required. There is no clear relationship between training intensity and outcome. The majority of studies point to the importance of addressing organisational factors as a barrier to change.

## ***Introduction***

Dementia is a growing problem that presents an increasing challenge for health services worldwide. Estimates of 35 million people living with dementia in 2013 are projected to double by the year 2030 (World Alzheimer Report, 2013). As elderly populations and the number of people suffering from dementia increases, so too does the demand for formal care (Jeon et al, 2012). Research indicates that up to 75% of people living in care homes in the UK have dementia (Orrell, Hancock, Hoe, Woods, Livingston & Challis, 2007), many of whom, by nature of the setting, have multiple complex needs that can be difficult to meet (Chenoweth et al, 2009).

The term 'behavioural and psychological symptoms of dementia' (Finkel, Costa e Silva, Cohen, Miller & Sartorius, 1996) has been used to describe the range of difficulties with behaviour and mood experienced by people with dementia (Goyder, Orrell, Wenborn & Spector, 2012). The prevalence of such symptoms is thought to be particularly high, with estimates between 79-84%, for those living in residential care (Margallo-Lana et al, 2001). Behaviours such as wandering, restlessness, aggression and disinhibition are frequently encountered by staff working in care homes (Davison, McCabe, Visser, Hudgson, Buchanan & George, 2007) and managing such behaviour has been associated with high levels of work place stress amongst care staff (Rodney, 2000).

The majority of staff working in residential services are care assistants who have little or no formal qualifications (McCabe, Davison & George, 2007) and the nature of the sector means that staff are often recruited from marginalised sub-groups of the population who may already be under numerous social stressors (World Alzheimer Report, 2013). In addition, care workers are historically undervalued and there is a frequent lack of career progression, clarity of job role, remuneration and training (Moniz-Cook, Millington & Silver, 1997). The impact of such factors on job satisfaction, burn out and staff retention are increasingly

recognised (Testad, Mikkelsen, Ballard & Aarsland, 2010; Pitfield, Shahriyarmolki & Livingston, 2011).

Training and education have been identified as important variables in enhancing the psychological well-being of staff (Moniz-Cook et al, 1997) and providing adequate training is likely to have broad-reaching benefits for staff and residents (World Alzheimer Report, 2013).

### ***Resident well-being***

The development of a person-centered approach in dementia (Kitwood, 1993) led to significant changes in the culture of residential care (Coogle, Head & Parham, 2006). Kitwood (1993) emphasised the importance of 'positive person work', giving greater consideration to the person's existing strengths, individuality and preferences. However, despite improvements being made, there remains a long-standing pessimism about the consistency of quality care provided in residential homes (Ballard et al, 2001) and continued efforts are needed to ensure quality of life for people with dementia (Alzheimer's Society, 2013).

Hannan, Norman and Redfern (2001) identified a complex network of factors impacting on the relationship between staff and resident well-being, including training and education. Training staff working in dementia care has been demonstrated as a promising way to improve the quality of care for people with dementia (Goyder et al, 2012) and research has shown that residents of carers who have received training improve significantly on measures of behavioural problems, depression and anxiety (Landreville, Dicaire, Verreault & Levesque, 2005; Goyder et al, 2012; Teri, Huda, Gibbons, Young & van Leynseele, 2005; Wells, Dawson & Sidari, 2000). The National Dementia Strategy (Department of Health, 2009) also underlined the need to improve the skills of staff working with people with dementia, setting out a number of objectives in order to provide staff with effective training.

### ***Staff well-being***

The well-being of the person providing care has frequently been linked to the

quality of life of the person with dementia, although the nature of the relationship remains unclear (Brodaty & Luscombe, 1998; Hannan et al, 2001). Caring for those with dementia is often emotionally and at times physically challenging, and it is essential that staff feel sufficiently skilled to fulfill their roles effectively (Pitfield et al, 2011).

Care homes have historically had difficulty in recruiting and retaining staff (Testad et al, 2010). Occupational burnout describes symptoms of emotional exhaustion in people who care for others in which psychological stress and a reduced sense of personal accomplishment may be experienced (Jeon et al, 2012; Maslach & Jackson, 1981; Pitfield et al, 2011) and it has been shown to be highly correlated with rates of staff turnover within care work (Edvardsson, Fetherstonhaugh, McAuliffe, Nay & Chenco, 2011; Jeon et al, 2012).

There is a known relationship between the ability of care staff to understand the challenging behaviour of residents with dementia and their level of job satisfaction (Hannan et al, 2001; Jeon et al, 2012). Providing training on such topics may enhance coping strategies and reduce job stress (Hannan et al, 2001), ensuring staff are equipped with the skills and a holistic knowledge of dementia so that the consistency of resident care is not compromised (Coogle et al, 2006).

### ***Theoretical Understanding of Staff Support***

Low levels of staff training may not only compromise knowledge of basic dementia care practices, but also contribute to staff feeling de-skilled and de-valued (Coogle et al, 2006).

Perceived organisational support theory (Eisenberger, Huntington, Hutchison & Sowa, 1986) provides a useful framework for understanding the importance of research into the impact of training on staff outcomes. The theory states that worker productivity is influenced by the degree to which staff feel valued by their organisation and the extent to which they feel that their well-being and contributions are recognised (Elliott, Scott, Stirling, Martin & Robinson, 2012).

Enhancing staff knowledge and sense of value through training has been shown to be one of the most effective interventions in reducing staff turnover (Broughton et al, 2011). Although the importance of training staff working in residential care was initially recognised in the early 1990s following Kitwood's focus on a person-centered approach in dementia, relatively little attention has been given to outcomes of training for paid caregivers (Elliott et al, 2012). A number of areas in which staff feel further training is required have been identified, including the management of challenging behaviour (World Alzheimer Report, 2013) and both private and statutory care homes are now recognising the importance of continuing education for staff in professionalising the residential care system.

### ***Existing reviews of staff training***

A number of existing reviews have examined the effectiveness of staff training, many of which have focused on resident factors as a primary outcome.

McCabe et al (2007) conducted a review of 19 studies published between 1990 and 2005, primarily looking at resident behavioural problems. Although they found no effect of training on resident behaviour, results indicated that training impacted on staff outcomes including job satisfaction and turnover rates.

Further reviews such as those conducted by Aylward, Stolee, Keat and Johncox (2003) and Kuske et al. (2007) also found training interventions to have some positive effect; however improvements in staff knowledge were often not accompanied by changes in behaviour and were rarely maintained over time. In addition, due to methodological weaknesses it was not possible to draw reliable conclusions

More recently, Elliott et al (2012) conducted a review of six studies focusing on the relationship between staff and organisational outcomes. They found variable effects and again raised methodological concerns. They concluded that research was limited and that further research should target wider factors such as worker well-being and psychological health.

### ***Current literature review***

The current literature review aimed to build on previous reviews of staff training. Research suggests that job satisfaction and associated factors such as attitude and sense of competence are key issues in reducing burnout and turnover (Edvardsson et al, 2011, Vernooij-Dassen et al, 2009). Whilst previous research has, for the most part, found training to be effective, reviews have yet to establish the staff factors most influenced by training. Addressing this is important in creating a focus for the development of staff training, and maximising its effectiveness in retaining a workforce for the future.

Previous reviews have also demonstrated the wide range of training programmes that exist. The current review therefore aimed to establish which training programmes are most associated with improved outcomes for staff. In addition to this the review assessed the impact of training duration and organisational factors such as level of managerial and supervisory support. Through further exploration of such factors, future interventions may be tailored to improve staff well-being and to ensure the best possible care is provided for residents with dementia.

### ***Literature review questions***

The review addressed the following research questions:

1. Which staff outcomes does training have the greatest impact on?
2. Which training programmes are the most effective in improving staff outcomes?
3. Does the duration of the training have an impact on training success?
4. Which barriers impact on training and how can these be addressed?

### ***Method***

This literature review is based on the methodology delineated in guidelines published by the York Centre for Reviews and Dissemination (University of York,

2009) on conducting systematic literature reviews in health care. Due to the limited number of randomised-controlled trials (RCTs) in this area of research, the current review includes both RCTs and non-randomised studies.

During the late 1990s, Kitwood's seminal work on person-centered care in dementia (Kitwood, 1997) precipitated a culture shift and a new approach towards working with people with dementia. In order to capture this shift and ensure that the current review focuses on the most recent available literature, only studies conducted between 1997 and 2013 will be included in this review.

***Inclusion criteria:***

- Randomised controlled trial (RCT) designs, quasi-experimental designs or interrupted time-series designs with patient as own comparison.
- Published in English in peer-reviewed journals.
- Published between 1997 and 2013.
- Training interventions for staff working in dementia care.
- Staff working in residential care homes, nursing homes or assisted living residences.
- Training focused on psychosocial outcomes for either staff or residents.
- Studies included staff outcome measures or a combination of staff and resident outcome measures.

***Exclusion criteria:***

- Staff training in a primary care, inpatient or home setting.
- Training programmes for family carers.
- Staff training focused on physical, medical or non-psychological outcomes e.g. use of restraint or use of medication.
- Use of resident outcome measures only.
- Case study designs.

***Search Strategy***

The databases Psycinfo and Medline were searched in September 2013. Key terms were entered into text word and subject heading searches in order to find studies involving staff training interventions ('staff training', 'staff education', 'staff training intervention/s', 'dementia training', 'dementia care training', 'dementia training intervention', 'dementia staff training', 'dementia education'), delivered to care staff ('nursing staff', 'nursing', 'care', 'caregiver/s', 'staff', 'care assistant/s', 'carer/s'), working with people with a diagnosis of dementia ('dementia', 'Alzheimer's disease', 'vascular dementia'), within a residential setting ('nursing home', 'care home', 'assisted living residence', 'residential care institution', 'long-term care'). Key terms were also used to focus on possible staff outcomes of training ('staff behaviour', 'staff psychological wellbeing', 'staff attitudes', 'self-efficacy', 'stress', 'job satisfaction', 'sense of competence', 'burnout', 'knowledge', 'coping behaviour', 'approach to dementia').

The papers derived using the above search criteria were reviewed by title, abstract and full paper according to the inclusion and exclusion criteria. Reference lists of relevant existing systematic reviews resulting from searches were also reviewed to identify additional studies.

### ***Quality rating***

The quality of the studies selected for review was assessed using an appraisal tool developed by Kmet, Lee & Cook (2004) for rating studies with a variety of designs.

Ratings of quality were based on a checklist of 14 criteria for which papers received a score of 0 (criteria not met), 1 (criteria partially met), 2 (criteria fully met) or 'N/A' if the criterion was not relevant to the type of study (e.g: randomisation procedures for a quasi-experimental design). Criteria included quality of study design, appropriateness of sample size and analytic method, as well as descriptions of randomisation, blinding and robustness of outcome measures (see Table 1). The assessment criteria (Appendix A) were used for rating both randomised and non-



randomised studies and take account of the different requirements of each. The total score was then calculated as a function of the total possible score given the design of the study and expressed as a value between 0 and 1. The criteria were chosen because they were suitable for all designs of study and adjusted scores accordingly, allowing for direct comparison of all the studies identified in the review.

### ***Classification of training programmes according to primary aim of training***

In order that the current literature review may be used to answer the questions posed, the selected studies were divided into five categories (see Table 2). The categories are based on the main aim of the staff training intervention allowing meaningful comparison of the studies to establish whether the focus of the training leads to any differences in impact on staff outcomes. Training programmes were categorised according to a focus on: 1) communication, 2) managing challenging behaviours, 3) person-centered approaches, 4) improving resident mood and quality of life and 5) improving staff knowledge/changing attitudes.

The intensity of the training programmes was also calculated from descriptions of its duration, to allow comparison. The total training hours were divided into three categories: low, medium and high intensity. Such ratings were calculated based on the mean study time and classified such that: training programmes of 1.5-5 hours were defined low intensity, training programmes of 6-11 hours were defined as medium intensity and 12-24 hours were defined as high intensity.

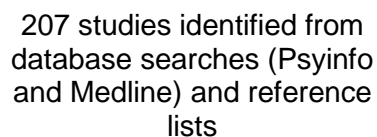
## ***Results***

### ***Results overview***

A total of 207 studies were identified from database searches, 188 of which were excluded based on the above exclusion criteria.

Of the total, 131 studies were excluded following a review of titles, as they were deemed unrelated to the review topic. Following an abstract review, a further

37 studies were excluded; 17 were deemed unrelated to the review topic, 9 focused on family carer training interventions, 6 focused on training interventions for non-care home staff, 4 were not published in English and 1 focused on a training intervention for physical health needs. Following a full paper search, a further 20 studies were excluded, either because they were not relevant (9), were existing systematic reviews (7), were not published in peer-reviewed journals (3) or were a small case study design (1). The final review included 19 studies (11 RCTs and 8 non-randomised studies), 16 of which were identified through database searches and a further three through hand-searching of reference lists and systematic reviews conducted in similar domains. The process of study selection is depicted in Figure 1 (below):



207 studies identified from  
database searches (Psyinfo  
and Medline) and reference  
lists



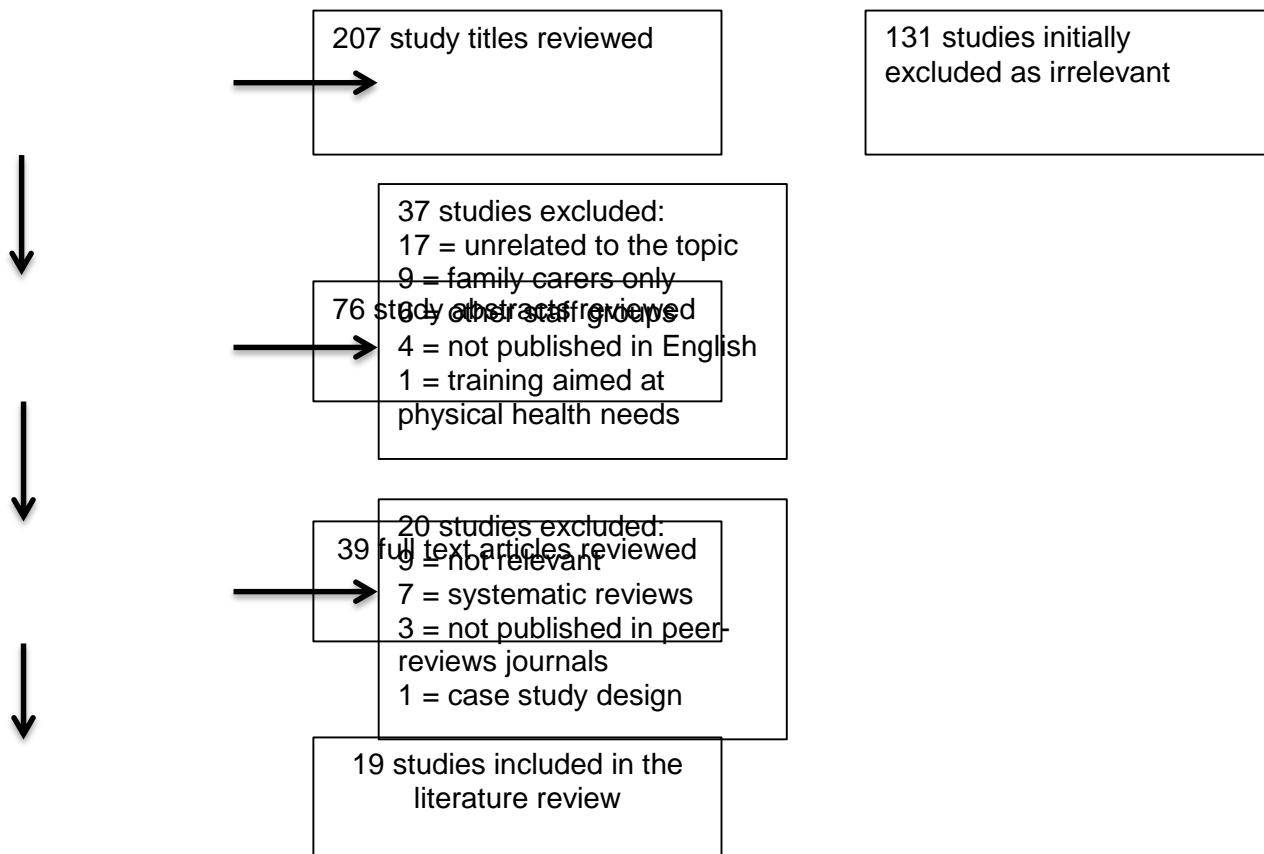


Figure 1: Flow chart of the study selection process

### ***Study design and quality***

Quality ratings ranged from 0.46 to 0.96 (see Table 1), indicating a wide variation in study quality. Overall, the studies showed methodological strengths in setting out clear study objectives, describing characteristics of experimental and comparison groups, describing results in detail and clearly linking conclusions to findings (criteria 1, 4, 13 and 14). There was greater variation in selection of appropriate sample size (with few clustered randomised controlled trials – ‘CRCTs’ adjusting for clustering effects), controlling for confounding factors and the robustness of outcome measures (criteria 8 and 9). Studies were generally found to show weakness in their description of the process of experimental and control group selection (criterion 3) and their methods of randomisation (criterion 5).



Table 1: Quality rating criteria and scores (Kmet et al, 2004)

	Question/ Objective sufficiently described?	Study design evident and appropriate?	Method of subject/comparison group selection described and appropriate?	Subject and comparison group characteristics sufficiently described?	Was random allocation described?	Was blinding of investigators reported?	Was blinding of subjects reported?	Outcome measures well defined and robust?	Sample size appropriate?	Analytic methods described and appropriate?	Some estimate of variance reported for the main results?	Controlled for confounding?	Results reported in sufficient detail?	Conclusions supported by the results?	Quality rating (total sum/total possible sum)
Featherstone et al (2004)	*	*	*	**			-	*	*	*	*	*	*	*	0.46
Davison et al (2007)	**	*	*		*		-	**	*	*	*	*	**	**	0.58
Visser et al (2008)	**	**	*	*	*		-	**		**	**	*	*	**	0.58
Coogle et al (2006)	*			**	-	-	-	**	*	*	*	*	**	**	0.59
Passalacqua & Harwood (2012)	**	*		*	-	-	-	*	*	**	*	*	*	**	0.59
McCallion et al (1999)	**	*	*	**	*	*	-	**	*	*	*	*	**	**	0.69
Teri et al (2005)	**	**	*	*	*	**	-	*	*	*	**	*	*	**	0.69
Broughton et al (2011)	**	*	*	**	*	**	-	*	**	*	*	*	**	**	0.73
Landreville et al (2005)	**	*	*	**	-	-	-	**	*	**	**		**	**	0.77
Magai et al (2002)	**	*	*	**	*	**	-	**	*	*	**	**	*	**	0.77
Peterson (2002)	**	**	*	**	-	-	-	**		*	*	**	**	**	0.77
Zimmerman et al (2010)	**	**	**	**	*	*	-	*	*	**	*	**	**	**	0.77
Finnema et al (2005)	**	**	**	**	*	*	-	*	*	**	**	*	**	**	0.80
Kuske et al (2009)	**	*	**	**	**	**	-	*	*	**	**	*	**	*	0.80
Goyder et al (2012)	**	**	**	**	-	-	-	**	**	**	*		**	**	0.86
Clare et al (2013)	**	**	**	**	**	**	-	*	*	*	**	**	**	**	0.88
Wells et al (2000)	**	**	*	**	-	**	-	**	*	**	**	**	**	**	0.92
Jeon et al (2012)	**	**	**	**	*	**	-	**	**	**	**	**	**	**	0.96
Richardson et al (2002)	**	**	**	**	**	**	**	**	**	**	*	**	**	**	0.96

\*\* = criteria fulfilled; \* = criteria partially fulfilled; () = criteria not fulfilled; - = not applicable for study type.

Table 2: Summary of studies included in the review

*Communication focused approaches*

Authors	Design, setting and intervention	Aim of training	N	Outcome domains	Outcome measures and time points	Results (follow-up results)	Quality rating	Comments
Broughton et al., 2011 (Australia)	Quasi-experimental Training (3) vs control group (1) Study: 3 months Training duration: 90 minutes Supervision:None <b>Low intensity</b>	Supporting staff to communicate with residents	<u>Staff</u> 68 <u>Resident</u> 52 4 care homes	<u>Staff</u> Knowledge of support strategies, caregiver satisfaction	<u>Staff</u> Knowledge of support strategies, PAC  <i>Time points:</i> Baseline, post-training, 3-month follow-up.	<u>Staff</u> Sig improvement in knowledge of support strategies (maintained) Nurses - higher levels of caregiver satisfaction.	0.73	Pos – Description of attrition rate, blinded markers, power analysis. Neg – Small control group, partial blinding of ptps, primary outcome measure not standardised.
Magai, Cohen & Gomberg 2002 (USA)	CRCT Training vs. placebo training vs. wait list control  Study: 2 weeks Training duration: 10 hours Supervision: None <b>Medium intensity</b>	To assess whether training in non-verbal communication could enhance resident mood	<u>Resident</u> 91 <u>Staff</u> 20 3 nursing homes	<u>Residents</u> Mood and behaviour <u>Staff</u> Psychological wellbeing	<u>Residents</u> BEHAVE-AD, CMAI, CSDD, MAX <u>Staff</u> BSI <i>Time points:</i> Baseline, 3, 6, 9 and 12 weeks follow-up	<u>Residents</u> Non sig reduction in behaviour problems and depression. <u>Staff</u> Sig decrease in depression, anxiety & somatic symptoms.	0.77	Pos – Assessors blinded, inter-rater reliability of observational measure. Neg – No power analysis, low staff numbers, no adjustment for clustering effects, randomisation not described.
McCallion et al., 1999 (USA)	CRCT NASCP training vs. wait-list control Study: 3 months Training duration: 7.8 hours Supervision:4 hours <b>Low intensity</b>	To develop interaction between staff and residents	<u>Resident</u> 105 <u>Staff</u> 88 2 nursing homes	<u>Residents</u> Mood, behaviour, disorientation <u>Staff</u> Knowledge, problem management	<u>Residents</u> CSDD, CMAI, MOSES, medication, restraint <u>Staff</u> KAT, MHQ <i>Time points:</i> baseline, 3 & 6 months	<u>Residents</u> Sig dec. in depression/ agitation. No impact on disorientation. <u>Staff</u> No change in KAT. Inc ability to manage problems (not maintained).	0.69	Pos –Nine month follow-up, assessors blinded. Neg – No power analysis, no clustering adjustment.

Passalacqua & Harwood 2012 (USA)	Quasi-experimental One group time series design  Study: 3 months Training duration: 4 hours Supervision: None <b>Low intensity</b>	To increase person-centered communication, beliefs and attitudes of staff	<u>Staff</u> 26  One care home	<u>Staff</u> Empathy, happiness, burnout, attitudes about ageing, communication	<u>Staff</u> MBI, attitudes (ageing process scale /ADQ), adapted PCC  <i>Time points:</i> baseline and 6 week follow-up.	<u>Staff</u> Sig increase in hope and empathy, sig decrease in depersonalisation.	0.59	Pos – Robust outcome measures, group characteristics described. Neg – Small sample, truncated outcomes measures, no power analysis, no follow-up.
Kuske et al., 2009 (Germany)	CRCT Training group vs. relaxation group vs. wait-list control  Study: 9 months Training duration: 13 hours Supervision: None <b>High intensity</b>	To improve interactions between staff and residents with dementia	<u>Staff</u> 96 <u>Resident</u> 210  6 nursing homes	<u>Staff</u> Knowledge, burnout, competence, health complaints <u>Residents</u> Reduced number of sedatives/restraints	<u>Staff</u> MHQ, MBI, BL <u>Residents</u> Use of physical restraints, sedatives and falls.  <i>Time points:</i> Baseline, post-training and 6-month follow-up.	<u>Staff</u> Sig increase in carer knowledge (not maintained)& competence, no effect on burnout/health complaints. <u>Residents</u> Sig increase in restraints (relaxation group), sedatives decrease	0.80	Pos – 6 month follow-up, independent randomisation, attrition characteristics reported. Neg –No power analysis, clustering effects not controlled for.

*BEHAVE-AD = Behavioural Pathology in Alzheimer's Disease Rating Scale, BL = 'Beschwerdeliste' German measure of health complaints, BSI = Brief Symptom Inventory, CMAI = Cohen-Mansfield Agitation Inventory, CSDD = Cornell Scale for Depression in Dementia, Dec. = Decrease, Inc. = Increase, KAT = Knowledge of Alzheimer's Test, MAX = Maximally discriminative Facial Movement Coding System, MBI = Maslach Burnout Inventory, MHQ = measure of staff knowledge and competence, MOSES = Multidimensional Observation Scale for Elderly Subjects, NASCP = Nursing Assistant Communication Skills Programme, Neg = Negative, PAC = Positive Aspects of Caregiving, Pos = Positive, PCC = Scale of patient-centered communication, ptps = participants, Sig. = significant.*

Authors	Design, setting and intervention	Aim of training	N	Outcome domains	Outcome measures and time points	Results (follow-up results)	Quality rating	Comments
Davison et al., 2007. (Australia)	CRCT Training+peer support vs. training vs. control  Study: 8 weeks Training duration: 10 hours Supervision:None <b>High intensity</b>	Training in managing challenging behaviours (with and without a support group)	<u>Staff</u> 90 <u>Residents</u> 113  6 care homes	<u>Staff</u> Staff burnout, self-efficacy <u>Residents</u> Frequency of behaviours	<u>Staff</u> MBI, SEDC, SNP <u>Residents</u> CMAI  <i>Time points:</i> <i>Baseline, 8 week &amp; 6 month follow up.</i>	<u>Staff</u> No sig effect on burnout (MBI), sig effect on self-efficacy for training group.	0.58	Pos – Six month follow-up, attrition reported. Neg -Randomisation method unclear, no power analysis, no clustering adjustment.
Visser et al., 2008 (Australia)	CRCT Training+peer support vs. training vs. control group  Duration: 8 weeks Training duration: 10 hours Supervision:None <b>High intensity</b>	Impact of training on resident behaviour and quality of life and staff attitudes and burnout.	<u>Residents</u> 76 <u>Staff</u> 52  3 care homes	<u>Residents</u> Behaviour, quality of life <u>Staff</u> Attitudes, burnout	<u>Residents</u> CMAI, ADRQL, restraint <u>Staff</u> SAQ, MBI.  <i>Time points:</i> <i>baseline, 8 weeks, 3 &amp; 6 month follow-up</i>	<u>Residents</u> No sig reduction in aggression or increase in QoL scores. <u>Staff</u> Training+peer support group improved on SAQ. No effect on burnout.	0.58	Pos – Six month follow-up, attrition rate reported. Neg –Randomisation not described, high attrition, no description of drop-outs, no adjustment for clustering effects.
Landreville et al., 2005 (Canada)	Quasi-experimental 1 group time series design Study:2 months Training duration: 15.5 hours Supervision: 8 hours <b>Medium intensity</b>	To help staff manage residents agitated behaviour	<u>Residents</u> 21 <u>Staff</u> 26  1 care home	<u>Residents</u> Agitation <u>Staff</u> Behaviour management, self-efficacy.	<u>Residents</u> CMAI <u>Staff</u> Self efficacy  <i>Time points:</i> <i>baseline, &amp; 2 month follow-up</i>	<u>Residents</u> Sig decrease in agitated behaviour (CMAI) at follow-up. <u>Staff</u> Sig increase in behaviour management and self efficacy.	0.77	Pos – Psychometric properties of new measures, two in-depth case studies. Neg – One group design, no follow-up, no power analysis.



Wells et al., 2000 (Canada)	Quasi-experimental 1 training unit vs. 3 control units  Study: 6 months Training duration: 5.8 hours Supervision: None <b>Low intensity</b>	To increase interaction behaviour and staff perceptions of caregiving.	<u>Residents</u> <u>nts</u> 40 <u>Staff</u> 44 4 care homes	<u>Residents</u> Interaction behaviours, agitation. <u>Staff</u> Interaction behaviours, stress, perceptions of caregiving.	<u>Residents</u> MIBM, PAS, LPRS <u>Staff</u> IBM, NHUS, perceived ease of caregiving.  <i>Time points:</i> Baseline, 3 & 6 month follow-up.	<u>Residents</u> Sig effect behaviour, level of agitation & overall function. <u>Staff</u> Sig effect on personal attending, no change in perceived ease of caregiving or stress.	0.92	Pos – Six month follow-up, assessor blinded, observational measure. Neg – No random allocation of groups.
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ADRQL = Alzheimer's Disease Related Quality of Life, CMAI = Cohen-Mansfield Agitation Inventory, IBM = The Interaction Behaviour Measure, LPRS = The London Psychogeriatric Rating Scale, MBI = Maslach Burnout Inventory, MIBM = Modified Interaction Behaviour Measure, NHUS = Nurses Hassle and Uplifts Scale, PAS = the Pittsburgh Agitation Scale, Pos = Positive, SAQ = Staff Attitudes Questionnaire, SEDC = Self-Efficacy of Dementia Care, Sig. = significant, SNP = The Scale of Nursing Performance.

*Person-centered care*

Authors	Design, setting and intervention	Aim of training	N	Outcome domains	Outcome measures and time points	Results (follow-up results)	Quality rating	Comments
Coogee, Head & Parham., 2006. (USA)	Quasi-experimental time series design Training duration: Phase 1: 12-hrs Train-the-trainer program: 0.5 day Supervision: none <b>High intensity</b>	To improve dementia care	<u>Staff</u> 53	<u>Staff</u> Staff goals; Job satisfaction; Career commitment	<u>Staff</u> MSQ, CCM  <i>Time points:</i> Baseline, 9-12 month follow-up.	<u>Staff</u> Sig increase in extrinsic job satisfaction. Sig decrease in career commitment	0.59	Pos – Robust and appropriate measures. Neg – No control group, no blinding of assessors, no power analysis.
Jeon et al., 2012. (Australia)	CRCT Training (PCC) vs. training (DCM) vs. TAU control Study: 8 months Training duration: 2 days (PCC) and 3 days (DCM). Supervision: none <b>High intensity</b>	Impact of PCC and DCM on staff outcomes	<u>Staff</u> 124  15 care homes	<u>Staff</u> Staff burnout, general health, attitudes to behavioural disturbances, perceived management support	<u>Staff</u> MBI, GHQ-12, NPI-NH, QUIS, management support  <i>Time points:</i> Baseline, post-training, 4-month follow-up	<u>Staff</u> Sig decrease of burnout (DCM only) No sig decrease in burnout. Correlation between perceived management support and MBI score (lower level of support = greater burnout)	0.96	Pos – Observational outcome measure used, attrition reported, adjustment for clustering effects. Neg – Randomisation method unclear.
Peterson., 2002 (USA)	Quasi experimental 1 group time series design. Study: 6-8 weeks Training: 6 hours Supervision: none <b>Medium intensity</b>	Effectiveness of dementia-specific training on staff outcomes.	<u>Staff</u> 72  750 homes invited to sessions	<u>Staff</u> Knowledge, stress level, self-esteem	<u>Staff</u> The Dementia Quiz, FCSI, RES  <i>Time points:</i> baseline, post-training and 6-8 week follow-up	<u>Staff</u> Sig increase in dementia knowledge (not maintained). No sig change in stress or self-esteem.	0.77	Pos- Controlled for experience and education level. Neg – Small sample size, no power analysis, correlational design.

CCM = Career Commitment Measure, DCM = Dementia Care Mapping, FCSI = Formal Caregiver Stress Index, GHQ-12 = General Health Questionnaire (12-item version), MBI = Maslach Burnout Inventory, MSQ = Minnesota Satisfaction Questionnaire, Neg = Negative, NPI-NH = Neuropsychiatric Inventory for the Nursing Home, PCC = Person Centered Care, Pos = Positive, QUIS = Quality of Interactions Schedule, RES = Reciprocal Empowerment Scale, Sig. = significant, TAU = Treatment as Usual.

*Improving resident mood and quality of life*

Authors	Design, setting and intervention	Aim of training	N	Outcome domains	Outcome measures and time points	Results (follow-up results)	Quality rating	Comments
Teri et al., 2005 (USA)	CRCT Intervention vs. control.  Study: 8 weeks Training duration: 10 hours Supervision: 2 hours <b>Medium intensity</b>	Reducing distress in residents and enhancing staff skills and job satisfaction.	<u>Resident</u> s 31 <u>Staff</u> 25 4 care homes	<u>Residents</u> Affective and behavioural distress  <u>Staff</u> Job satisfaction and competence	<u>Residents</u> GDS, CAS, RMBPC, ABID, NPI <u>Staff</u> SSQC, job satisfaction <i>Time points: baseline and 8 week follow-up</i>	<u>Residents</u> Sig reduction in behaviour problems, depression & anxiety.  <u>Staff</u> No sig increase in sense of competency or job satisfaction.	0.69	Pos– Adjustment for clustering effects, blind assessors, intention to treat analysis. Neg – Randomisation procedure not fully described, no power analysis.
Goyder et al., 2012 (UK)	Quasi-experimental pilot study 1 group time series design Study: 8 weeks Training duration: 8 hours Supervision: 2 hrs <b>Medium intensity</b>	Reducing BPSD and secondary effects on staff.	<u>Resident</u> s 32 <u>Staff</u> 25 2 care homes	<u>Residents</u> BPSD, quality of life.  <u>Staff</u> Attitude towards dementia, sense of competence.	<u>Residents</u> CSDD, RAID, RMBPC, QOL-AD, MMSE <u>Staff</u> ADQ, SCIDS <i>Time points: baseline and 8 week follow-up</i>	<u>Residents</u> Sig decrease in depression and disruptive behaviour, Non sig decrease in anxiety or QoL. <u>Staff</u> No sig increase in positive attitude or sense of competence.	0.86	Pos – Robust outcome measures, power analysis. Neg – No control group, no blinding of participants or assessors.
Clare et al., 2013 (UK)	CRCT Intervention vs. control group Study: 8 weeks  Training duration: 3 hours Supervision: fortnightly <b>Low intensity</b>	To address staff perception of resident awareness	<u>Resident</u> s 66 <u>Staff</u> 65 8 care homes	<u>Residents</u> Quality of life, well-being, behaviour and cognition  <u>Staff</u> Attitudes; well-being; care practices	<u>Residents</u> QUALID, PRS, GADS, BASOLL. <u>Staff</u> MBI, GHQ-12, ADQ Quality of Care, DCPA <i>Time points: baseline and follow-up</i>	<u>Residents</u> Sig better quality of life (family-rated) in intervention group. No other sig differences. <u>Staff</u> No sig differences	0.88	Pos- Standardised outcome measures, blinding of assessors, clustering effects assessed, detail of attrition. Neg- Blinding of participants not reported, analysis not conducted as intended.

Finnema et al., 2005 (Netherlands)	CRCT Emotion oriented care vs. usual care Study: 7 months Training duration: 16 hours Supervision: none <b>High intensity</b>	Impact of emotion-focused care on residents with dementia	<u>Residents</u> 146 <u>Staff</u> 99 14 nursing homes	<u>Residents</u> Emotional adaptation, mood, behaviour. <u>Staff</u> General health, work place stress, job satisfaction.	<u>Residents</u> ASEP, CSDD, CMAI, GRGS, PGCMS <u>Staff</u> OSS, GHQ, DWSS <i>Time points: baseline and 7 month follow-up</i>	<u>Residents</u> Sig improved emotional adaptation for residents with mild-mod but not mod-severe dementia <u>Staff</u> Sig reduced stress. No effect on stress or job satisfaction.	0.80	Pos – Seven month follow-up, attrition reported. Neg – Randomisation procedure not clear, assessors partially blinded, no intention to treat analysis.
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ABID = Agitated Behaviours in Dementia, ADQ = Approaches to Dementia Questionnaire, ASEP = Assessment Scale for Elderly Patients, BASOLL = Behavioural Assessment Scale of Later Life, CAS = Clinical Anxiety Scale, CMAI = Cohen-Mansfield Agitation Inventory, CSDD = Cornell Scale for Depression in Dementia, DCPA = Dementia Care Practitioner's Assessment, DWSS = Dutch Work Satisfaction Scale, GADS = Guy's Advanced Dementia Schedule, GDS = Geriatric Depression Scale, GHQ-12 = General Health Questionnaire (12-item version), GRGS = Geriatric Resident Goal Scale, MBI = Maslach Burnout Inventory, MMSE = Mini-Mental State Examination, Neg = Negative, NPI = Neuropsychiatric Inventory, OSS = Organization and Stress Scale, PGCMS = Philadelphia Geriatric Centre Moral Scale, Pos = Positive, PRS = Positive Response Schedule, QOL-AD = The Quality of life – Alzheimer's Disease, QUALID = Quality of Life in Late Stage Dementia Scale, RAID = Rating Anxiety in Dementia Scale, RMBPC = Revised Memory and Behavioral Problem Checklist, SCIDS = Sense of Competence in Dementia Care Staff, Sig. = significant, SSQC = Short Sense of Competency Questionnaire.

*Improving staff knowledge/changing attitudes*

Authors	Design, setting and intervention	Aim of training	N	Outcome domains	Outcome measures and time points	Results (follow-up results)	Quality rating	Comments
Feathers tone et al., 2004. (UK)	Quasi-experimental Training vs. wait-list control Study: 6 weeks Training duration: 6 hours Supervision: none <b>Medium intensity</b>	Improve carer knowledge attitude and coping	<u>Staff</u> 40 4 care homes	<u>Staff</u> Staff attitudes knowledge, general coping style	<u>Staff</u> CBS, Dementia Quiz 1, Dementia Quiz 2, CRQ  <i>Time points:</i> <i>Baseline and post-training.</i>	<u>Staff</u> Sig impact of training on attitude and knowledge. No sig impact on coping style.	0.46	Pos – Group characteristics described. Neg – No follow up, confounding variables not controlled for, no randomisation, self-selected convenience sample.
Richards on, et al, 2002 (UK)	RCT Training vs. printed info Study: 6-8 weeks Training duration: 6 hours Supervision: none <b>Medium intensity</b>	Improve knowledge /management of elder abuse.	<u>Staff</u> 64	<u>Staff</u> Management of abuse, attitude, burnout	<u>Staff</u> KAMA, MBI, AHCPDP  <i>Time points:</i> <i>baseline and post-training</i>	<u>Staff</u> Training group: sig increase in knowledge and management. No sig change in attitude or burnout.	0.96	Pos – Attrition reported. Neg – No follow up, few outcome measures.
Zimmer man et al., 2010 (USA)	CRCT Intervention vs. control  Study: 4.5 months Training duration: 6 weeks	Evaluation of a national training curriculum program.	<u>Staff</u> 491_care staff, 173 supervisors  9 nursing & 7 care homes	<u>Staff</u> Staff knowledge, attitudes, stress, satisfaction, perceptions of training and organisational outcomes.	<u>Staff</u> ADQ, WSI, training perception confidence, <u>Organisational</u> communication, BLS, supervisory support. <i>Time points:</i> <i>baseline, post-training &amp; 3months</i>	<u>Staff</u> Sig increase in knowledge, communication and work stress, no sig effects for satisfaction or confidence. <u>Organisational</u> Sig decrease in reported supervisor support at follow-up	0.77	Pos – Three month follow-up, adjusted for clustering effects, intention to treat analyses. Neg – Parallel questions used at different time points. No psychometrics reported for outcome measures, no power analysis.

*ADQ = Approaches to Dementia Questionnaire, AHCPDP = Attitude of Health Care Personnel towards Demented Patients, BLS = Baldrige Leadership Scale, CBS = Controllability Belief Scale, CRQ = Coping Response Questionnaire, KAMA = Knowledge and Management Questionnaire, MBI = Maslach Burnout Inventory, Neg = Negative, Pos = Positive, Sig. = significant, WSI = Work Stress Inventory.*

### ***Characteristics of the selected studies***

The studies included in the review (Table 2) demonstrate a wide-range of training programmes, varying in focus, duration and method of delivery. Most have drawn heavily on behavioural or person-centered principles using a combination of educational and practical components.

Most frequently, training focused on seeking to improve communication between care staff and residents, with five studies evaluating such training programmes (Broughton et al, 2011; Kuske et al, 2009; Magai, et al, 2002; McCallion, Toseland, Lacey & Banks, 1999; Passalacqua & Harwood, 2012). Specific outcome domains varied, either providing staff with practical communication strategies or training to recognise and validate resident's emotional cues.

Four training programmes (Davison et al, 2007; Landreville et al, 2005; Visser et al, 2008; Wells et al, 2000) sought to help staff to manage challenging behaviour. The majority of these focused on training staff to apply behavioural principles to managing agitation through the manipulation of antecedents and consequences. One programme (Wells et al, 2000) used a strengths-based approach to encourage independence in the morning care routine.

Three training programmes (Coogle et al, 2006; Jeon et al, 2012; Peterson, 2002) were based on person-centered care (Kitwood, 1997), promoting unconditional positive regard and teaching staff to develop person-centered care plans.

Four training programmes (Clare et al, 2013; Finnema et al, 2005; Goyder et al, 2012; Teri et al, 2005) focused specifically on interventions to reduce distress and improve the quality of life for people with dementia, using a combination of behaviourally based and emotion-focused approaches in developing skills to understand and respond to challenging behaviour.

Finally, three studies (Featherstone, James, Powell, Milne & Maddison, 2004; Richardson et al, 2002; Zimmerman et al, 2010) specifically assessed the impact of increased knowledge in different domains (management of elder abuse, pain reduction, communication, leadership and experiences of dementia) on staff attitudes and burnout.

The estimated quality of the studies rated using Kmet et al's (2004) appraisal tool is summarised in Table 1. To facilitate comparison, the studies have been divided into three categories, indicating low (scores of 0.46-0.6), medium (scores of 0.6-0.8) or high quality (scores of 0.8-0.96).

Two studies (Jeon et al, 2012; Richardson et al, 2002) received the highest quality rating given in the review (0.96). Both were RCTs, controlled for confounding factors, adequately described subject and comparison group characteristics, used blinded assessors and drew conclusions supported by their findings. Jeon et al, (2012) also used a CRCT design. They did not describe their method of randomisation, however they had a large sample size and adjusted for clustering effects. Richardson et al (2002) gave a detailed account of the process of randomisation, but had a short follow-up and relied on self-report measures which may have introduced bias. Other studies rating highly (Clare et al, 2013; Finnema et al, 2005; Goyder et al, 2012; Kuske et al, 2009; Wells et al, 2000) reported study and comparison group characteristics in sufficient detail, had larger samples and used blinded assessors where possible. Kuske et al (2009) also utilised an independent randomisation procedure to minimise bias. Clare et al (2013) assessed for clustering effects and gave detail of attrition; however, did not conduct the analysis as intended, impacting on the validity of the findings and increasing the likelihood of Type 1 error. Although Goyder et al (2012) and Wells et al (2000) used robust outcome measures and conducted power analyses, control groups were not included and therefore the extent to which the findings may be attributed to the intervention are limited.

A study conducted by Featherstone et al (2004) received the lowest quality rating in the review (0.46). Although a wait-list control group was used, the sample was small, and groups were self-selected. Four other studies (Coogler et al, 2006; Davison et al, 2007; Passalacqua & Harwood, 2012; Visser et al, 2008) also received low quality ratings of 0.58 and 0.59. Although both Visser et al (2008) and Davison et al (2007) utilised CRCT designs, the randomisation procedures were either unclear or not described and no adjustment was made for clustering effects. Visser et al (2008) experienced high attrition (50%) in the education only group and therefore the group was excluded from the analysis at follow-up, reducing statistical power and making it difficult to draw conclusions. Davison et al (2007) encountered differences between the experimental and control groups at baseline. Although these were controlled for, this is likely to have had an impact on the external validity of the study.

The remaining studies rated in the review were of medium quality, receiving ratings between 0.69 and 0.77. Generally such studies had appropriate study designs for the questions posed, adequate sample sizes and conclusions that were supported by their results. However, the outcome measures used varied in quality and many did not adjust results for clustering effects, inflating the risk of Type 2 error.

### ***Impact of training on staff factors***

A large variety of staff outcome domains were evaluated across studies. Many variables such as empathy, happiness and perceptions of caregiving were measured by only one or two studies. The most frequently measured variables are reviewed below.

### ***Attitudes towards dementia***

Eight studies measured staff attitudes, most often using the Approaches to Dementia Questionnaire (ADQ, Lintern, Woods & Phair, 2000), which has been shown to have good psychometric properties (Goyder et al, 2012). Three rated as



low quality (Featherstone et al, 2004; Passalacqua & Harwood, 2012; Visser et al, 2008), one as medium quality (Zimmerman et al, 2010) and four as high quality (Jeon et al, 2012; Goyder et al, 2012, Clare et al, 2013; Richardson et al, 2002). The majority of studies found that staff training had no significant impact. Although a significant impact on staff attitudes towards challenging behaviour was demonstrated by several studies, these were rated as low quality due to high attrition, small sample sizes and lack of adjustment for clustering effects and therefore the results should be interpreted with caution.

### ***Knowledge***

Seven studies assessed staff knowledge in a variety of domains. Individual outcome measures were primarily developed for the studies and therefore varied in psychometric quality. Six interventions found a significant increase in knowledge post-training. Two rated as high quality (Kuske et al, 2009; Richardson et al, 2002), three as medium quality (Broughton et al, 2011; Peterson, 2002; Zimmerman, 2010) also finding knowledge to be maintained at follow-up, and one as low quality (Featherstone et al, 2004). One study rated as medium quality (McCallion et al, 1999) did not find a significant impact of training on staff knowledge. However, high pre-training scores were found, indicating that a ceiling effect may have occurred.

### ***Burnout***

Seven studies measured burnout, all using the Maslach Burnout Inventory (MBI), assessing factors such as emotional exhaustion and reduced personal accomplishment (Maslach & Jackson, 1981). Four rated as high quality (Clare et al, 2013; Jeon et al, 2012; Kuske et al, 2009; Richardson et al, 2002) and three as low quality (Davison et al, 2007; Passalacqua & Harwood, 2012; Visser et al, 2008). One high quality study evaluating training in dementia care mapping (Jeon et al, 2012) found a significant decrease in emotional exhaustion, maintained over time. Passalacqua & Harwood (2012) reported a significant change on MBI subscales of depersonalisation and hope. However, the study received a low quality rating and

would require replication with a larger sample. The majority of studies reported training to have no significant impact.

### ***Job satisfaction***

Four studies measured the influence of training on job satisfaction. One rated as high quality (Finnema et al, 2005) and two as medium (Teri et al, 2005; Zimmerman et al, 2010). A study rating as low quality (Coogle et al, 2006) found an increase in job satisfaction. However, although a robust outcome measure (Minnesota Satisfaction Questionnaire - Weiss, Dawis & England, 1967) was used, there was no control group and a limited number of outcome measures, compromising validity. No improvement in job satisfaction was noted following training in other studies.

### ***Sense of competence***

Three studies measured staff sense of competence. A study rated as high in quality (Kuske et al, 2009) found a significant increase in sense of competence managing challenging behaviour which was maintained at follow-up. Other studies measured competence using the Sense of Competence in Dementia Scale (SCIDS, Schepers, Orrell, Shanahan & Spector, 2012). Goyder et al (2012) also rating as high quality, found a significant improvement on the 'building relationships' subscale. Teri et al (2005) rated as medium quality due to a lack of power analysis or description of randomisation and found competence to increase but not significantly over time.

### ***Self-efficacy***

Two studies (Davison et al, 2007; Landreville et al, 2005), scoring as low and medium quality respectively, found a significant increase in self-efficacy following training on management of challenging behaviour which was maintained at follow-up. Neither used a power analysis, but attrition was reported and well-defined outcome measures were used.

### ***Which training programmes had the greatest impact on staff outcomes?***

### ***Communication focused approaches***

Five studies evaluated training interventions on staff-resident interaction. A high quality study (Kuske et al, 2009) found significant increases in knowledge of caregiving responses and staff competence. Medium quality studies also found significant increases in knowledge of caregiving responses (maintained at follow-up), caregiver satisfaction, staff turnover (Broughton et al, 2011; McCallion et al 1999) and depression and anxiety (Magai et al, 2002). Passalacqua & Harwood (2012) found a decrease in the burnout subscale of resident depersonalisation, however it was rated low in quality and therefore should be interpreted with caution.

### ***Managing challenging behaviours***

Four studies evaluated training programmes on the management of challenging behaviour. A study of high quality found a significant increase in staff-resident interaction (Wells et al, 2000). Landreville et al (2005) rated as medium quality and found a significant increase in self-efficacy, as did Davison et al (2007) although this rated as low quality. Visser et al (2008) reported a change in staff attitudes towards residents following training. Studies that measured staff burnout did not find training to have a significant impact. Similarly no effect was found on stress or perception of caregiving.

### ***Person-centered care***

Three studies evaluated programmes on person-centered approaches. A study by Jeon et al (2012), rated as high quality, found training in dementia care mapping led to a significant decrease in staff burnout. Peterson (2002, medium quality) found training significantly increased dementia knowledge, but found no impact on stress or self-esteem. Coogle et al (2006) found a significant increase in job satisfaction but was rated as low quality.

### ***Improving resident mood and quality of life***

Four training programmes on improving resident mood and quality of life found improvements in these areas. Finnema et al (2005, high quality) also found

a significant reduction in staff stress levels. Teri et al (2005, medium quality) and Goyder et al (2012, high quality), noted positive but not significant changes in staff competence, hopefulness and job satisfaction.

### ***Improving staff knowledge/changing attitudes***

Three studies evaluated training to improve staff knowledge and attitudes towards people with dementia. All studies found a significant increase in knowledge following training. A medium quality study (Zimmerman et al, 2010) reported a small but significant increase in staff stress following training, underlining the importance of wider organisational issues in staff outcomes. Featherstone et al (2004) also demonstrated a significant improvement in staff attitude. However, it rated low in quality. Neither study found a significant improvement in staff satisfaction, confidence, or burnout.

### ***Barriers to staff training***

Of the 19 studies reviewed, nine (Broughton et al, 2011; Clare et al, 2013; Coogle et al, 2006; Davison et al, 2007; Featherstone et al, 2004; Jeon et al, 2012; Kuske et al, 2009; Visser et al, 2008; Zimmerman et al, 2010) discussed the impact of organisational barriers on outcomes. However, only three studies, varying in quality, used a formal measure to identify the impact of such factors (Visser et al, 2008; Jeon et al, 2012; Zimmerman, 2010).

Visser et al (2008) rated as low in quality and used an unstandardised, self-report questionnaire to measure staff perceptions of barriers to change. Staff rated statements such as 'I don't have time to attend education sessions' and 'there are many barriers preventing me from using new work methods'. The results indicated that staff perceived greater barriers to change at 3 and 6-month follow-up, alongside a significant increase in knowledge and skills. Level of management support was not measured.

Zimmerman et al (2010) rated as medium quality and measured organisational uptake, leadership, and supervisory support. Results suggested a

significant decrease in reported supervisory support from baseline to follow-up for the intervention group.

Finally, Jeon et al (2012) rated as high quality and used a 3-item measure of perceived management support. Staff rated statements such as 'I feel my managers provide sufficient resources to do my job effectively' and 'I feel my managers listen to my suggestions and concerns'. Results demonstrated an association between level of perceived support and burnout, such that lower levels of perceived support were correlated with burnout subscales of emotional exhaustion and depersonalisation. Staff perceptions of being listened to were significantly correlated with lower staff burnout.

### ***Summary***

In summary, seven studies rated as high quality, seven as medium quality and five as low quality. Findings suggest that training was most effective at improving staff knowledge (Broughton et al, 2011; Kuske et al, 2009; Peterson, 2002; Featherstone et al, 2004; Richardson et al, 2002; Zimmerman, 2010), although this was not consistently maintained over time. Interventions were also found to have a significant impact on self-efficacy (Davison et al, 2007; Landreville et al, 2005) and sense of competence (Kuske et al, 2009). Other findings of increased sense of competence (Teri et al, 2005; Goyder et al, 2012) were positive but not significant; however, small sample sizes may have led to decreased power to detect effects. For the most part, the interventions that impacted on these domains focused on helping staff manage challenging behaviour (Davison et al, 2007; Goyder et al, 2012; Kuske et al, 2009; Landreville et al, 2005; Teri et al, 2005;) and taking a person centered approach (Jeon et al, 2012).

### ***Discussion***

The current review has confirmed that training can have a valuable impact on staff outcomes and the most frequent finding was an increase in staff

knowledge. Knowledge is closely associated with levels of job satisfaction and wellbeing (Elliott et al, 2012) and research has shown improvements in staff knowledge to be part of a causal chain impacting on staff attitudes and behaviour (Zimmerman et al, 2010). Improvements in competence and self-efficacy were also noted, although the quality of studies was variable. In the majority of studies, significant findings were maintained at follow-up, suggesting staff training interventions can have a lasting impact.

### ***Impact of intensity***

The training programmes evaluated in this review ranged from one 90-minute session to 24 hours over a number of weeks. Variation also occurred in the amount of ongoing support to consolidate training. Five training programmes offered supervision (McCallion et al, 1999; Landreville et al 2005; Teri et al 2005; Goyder et al, 2012; Clare et al, 2013) ranging from two to eight hours, in an individual or group format. However, this did not lead to additional improvement in staff outcomes, underlining the importance of taking other organisational factors such as attendance and management support into account. There was a lack of clear relationship between intensity and outcome, with low intensity studies proving to be as effective.

### ***Impact of aim of training on outcomes***

The current review suggests that training on management of challenging behaviour had the greatest impact. All studies addressing this domain found significant effects on staff self-efficacy (Davison et al, 2007; Landreville et al, 2005), attitude to dementia (Visser et al, 2008) or staff-resident communication (Wells et al, 2000). In addition, training programmes including modules on managing challenging behaviour (Kuske et al, 2009; Goyder et al, 2012; Teri et al, 2005) also found positive trends, with training impacting primarily on staff sense of competence. This suggests that understanding resident behaviour and being equipped with strategies to manage it, leads staff to develop a sense of self-

efficacy. Such findings are consistent with literature from research on burnout in dementia care (Duffy, Oyebode & Allen, 2003; MacKenzie & Peragine, 2003), suggesting that competence in managing challenging behaviour is implicated in developing self-efficacy and is associated with reduced burnout (Hannan et al, 2001). This finding reinforces views expressed by staff about a desire for further training in managing challenging behaviour (World Alzheimer Report, 2013). Findings also mirror those found in other domains such as care staff working with people with intellectual disabilities (Cudré-Maroux, 2011). The success of training programmes in this domain is encouraging and may indicate a focus for future interventions.

Training programmes using person-centered approaches were also found to be effective. However only one study in this domain was rated as high quality (Jeon et al, 2012) and further research would be needed to draw firm conclusions.

Studies focusing on improving residents outcomes, appear to have had the least impact on staff outcomes, despite finding promising results for residents on behavioural problems and mood (Teri et al, 2005; Goyder et al, 2012; Clare et al, 2013). This points towards the importance of factors beyond resident well-being such as staff self-efficacy, communication and organisational support.

### ***Influence of organisational factors on staff training***

This review indicates the importance of organisational support with an association demonstrated between perceived management support and burnout. Interestingly, all reported an increase in barriers to change post-training. An increase in staff awareness of limited support and frustration with inability to effectively implement skills learned in training may have contributed to this. A sense of being able to provide quality care has been closely linked with job satisfaction (Edvardsson et al, 2011) and is therefore important to consider in outcome maintenance.

Lack of organisational support was cited by numerous studies as a barrier to change, and this may have contributed in studies where findings were not maintained at follow-up. A lack of attention towards such factors has been highlighted in the literature (Elliott et al, 2012). It would be important for training intervention studies to formally measure such outcomes so that an evidence base may be developed and future training may be implemented in a way that allows learning to be transferred and maintained.

### ***Methodological Issues***

Historically, small-scale clinically driven research is more common in residential settings due to difficulties with attrition and management support. Consequently, studies evaluating training in care homes are of variable quality.

In order to prevent contamination of study samples, clustered randomised controlled trials (CRCTs) are commonly used in staff team contexts (Elliott et al, 2012). However, many of the studies in the review did not adjust for this, inflating the risk of type 2 error in sufficiently powered research.

A wide variety of outcome measures, many of which were unstandardised, may also have increased bias, making it difficult to draw reliable conclusions about effectiveness.

Inadequate reporting or handling of high attrition also occurred frequently, potentially leading to small or unequal sample sizes. Additionally, due to the nature of the research, double blinding was not possible and partial blinding was not used consistently. In combination with a majority of self-reported outcome measures this is likely to have inflated the risk of bias.

### ***Limitations of the current review***

The quality appraisal tool used in this review developed by Kmet et al (2004) adjusts scores to give both randomised and non-randomised studies equal weighting. In a residential care setting, this may be of benefit as quasi-experimental designs often hold greater ecological validity. However, such results may hold less



internal validity than those gained through randomised studies and therefore the results should be interpreted with caution. Although the tool does not include any scoring guidelines on what should be considered a study of an acceptable or high quality, it does allow inter-study comparison.

Bias may also have been introduced through the search strategy. Due to the scope of the current review, search terms were entered into a limited number of databases, meaning that a number of studies may have been overlooked. Studies with non-significant results or negative outcomes are also less likely to be published and therefore the studies reviewed may not be wholly representative of staff training outcomes. The variety of outcome measures used in this field of research also makes meaningful comparison difficult and further research would be required.

### ***Implications for future research***

Many studies have highlighted the importance of organisational factors. In some cases, frustration over varying management support, restricts the implementation of new learning (Visser et al, 2008; Jeon et al, 2012; Zimmerman, 2010). Further research into the factors that may facilitate transfer of learning is therefore required.

Staff dissatisfaction in providing adequate care for residents is one of the main components of high burnout and staff turnover reported in residential care (Edvardsson et al, 2011; Kuske et al, 2007; Vernooij-Dassen et al, 2009). Greater levels of management support may lead staff to feel increasingly valued in their work.

The review has highlighted a number of methodological weaknesses in the existing evidence base. It would be important for researchers to address factors such as high attrition, clustering effects and greater parity of outcome measures in order to draw meaningful comparisons between different training approaches in the future.

As the number of people with dementia and therefore the size of the dementia work force increases, policy makers will be looking to make evidence-based decisions about the minimum level of staff training required to initiate change. Findings about the impact of training intensity and continuing supervision were somewhat inconsistent, so it would be important for future research to clarify the role of intensity on effectiveness.

An additional consideration is the suitability of the study design for capturing change in complex constructs such as job satisfaction and burnout. Many studies used follow-up points between three weeks and 12 months. It is important to consider whether this time period would allow change in such domains to be captured. It would also be important for future research to include longer follow-up and increased post-training support to clarify whether outcomes can be maintained.

### ***Conclusion***

Staff and resident well-being are inextricably linked. In order to ensure that those with dementia living in residential care are adequately cared for in the future, it is important to ensure that staff are equipped to provide this care. This review has shown that ability to provide adequate care is about more than knowledge. It demonstrates that improvements in self-efficacy and competence are possible but that many staff factors are difficult to change. It suggests that future research should focus on minimising organisational barriers and helping staff to manage challenging behaviour taking a person-centered approach. The construction of a more reliable evidence base by addressing current methodological weaknesses is also required.

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Part 2: Empirical Paper

The Biopsychosocial model of dementia: its use in clinical practice. A pilot study.

### **Abstract**

**Introduction:** Staff training has been demonstrated as important in equipping people with the skills to provide high quality care for people with dementia. The Biopsychosocial (BPS) model of dementia (Spector & Orrell, 2010) acts as a practical tool, enabling staff to develop idiosyncratic interventions and treatment plans. This feasibility study aimed to examine the effectiveness of training staff to use the BPS model on their ability to understand, formulate and develop interventions for people with dementia, and to assess the impact on their attitude towards dementia and sense of competence in their roles.

**Method:** A within-subjects design was used to evaluate the effectiveness of training thirty-seven staff working in dementia care across a community mental

health team, inpatient wards and residential care homes. Outcome measures were collected at baseline, post-training and four week follow-up.

**Results:** The ability of staff to understand, formulate and develop interventions for people with dementia increased significantly following training. There were small, non-significant improvements in the positive attitude of staff towards dementia and sense of competence following training. Staff reported the training to have improved their understanding of the biological and psychosocial factors in dementia.

**Conclusion:** This study provides preliminary evidence that training staff in the BPS model can lead to improvements in their ability to understand and develop interventions. Further research would be required to draw firm conclusions about its effectiveness.

### ***Introduction***

Dementia presents an increasing challenge for global health services. Estimates that 36 million people were living with dementia worldwide in 2010 are projected to reach 115 million by the year 2050 (World Alzheimer Report, 2013). As the burden of the disease grows, the number of professional carers required will also increase (Pitfield, Shahriyarmolki & Livingston, 2011). Research into the factors that enable staff to provide the highest quality care for people with dementia is therefore of paramount importance in ensuring that a competent workforce can be recruited and maintained for the future (Edvardsson, Fetherstonhaugh, McAuliffe, Nay & Chenco, 2011).

### ***Background***

Historically, dementia has been conceptualised as a disease process defined by neurological deterioration (Davis, 2004). As a result, much research has focused on understanding and treating it in accordance with the medical model (Finnema, Droes, Ribbe & van Tilburg, 2000). Viewing dementia as a disease enables predictions about the likely speed and nature of deterioration to be made and offers a common language to be shared amongst professionals. However, the inherent focus on deficits associated with a deterioration in neurological functioning, leads to a somewhat pessimistic view of the disease course, limiting the focus of research and treatment (Kitwood, 1993).

It is well established that many people with dementia experience impairment in excess of what might be expected based on findings of neurological impairment (Brody, Kleban, Lawton & Silverman, 1971) and research has consistently demonstrated a lack of clear relationship between brain pathology and its clinical expression (Snowdon, 2003). This indicates a complex interplay of other influences on a person's symptoms (Brody, et al, 1971; Katzman et al, 1989; Snowdon, 2003), stimulating the need for further research and the development of broader frameworks for its conceptualisation.

### ***Models of dementia***

Early critics such as Engel (1977) argued that the medical model largely failed to consider the social, psychological and behavioural dimensions of dementia, proposing a more holistic biopsychosocial approach to take account of factors relating to the person and their social context (Downs, Clare & Anderson, 2008).

Evidence underlining the importance of factors beyond neuropathology allowed for the construction of a number of psychosocial theories accounting for the development and progression of dementia (Snowdon, 2003). Such models include Baltes and Baltes' (1990) developmental model in which ageing is viewed as an adaptive process of selective optimisation; and The Adaptation Coping

model (Droëns, 1991, cited in Spector & Orrell, 2010) which describes a number of cognitive, emotional and social adaptive tasks through which individuals with dementia strive to maintain equilibrium. The subsequent development of Kitwood's dialectical model (1993) led dementia to be understood as an interrelationship between neurological deterioration and psychological factors such as personality, biography, social psychology and physical health, with his seminal work on 'personhood' (1997) leading to a shift in the way dementia was viewed, giving greater consideration to the individual's needs, interests and strengths.

### ***The Biopsychosocial model of dementia***

Although many existing models add to the overall understanding of the factors that influence dementia, Spector and Orrell (2010) responded to a need for an approach that allows the application of theory to practice, not only drawing together relevant biological, psychological and social processes but also acting as a practical tool for developing idiosyncratic interventions for people with dementia.

The Biopsychosocial (BPS) model of dementia (Spector & Orrell, 2010, Appendix B) builds on limitations in previous theories taking account of both positive and negative factors in ageing. It proposes that the identification of individualised biological and psychosocial factors that may be amenable to change is crucial in maximising an individual's potential and minimising their level of excess disability (Brody et al., 1971).

The model proposes that in both biological and psychosocial domains there are fixed and tractable factors. Fixed factors are those not amenable to change, such as previous life events and age, whilst tractable factors are those that may be amenable to change, such as mood and environment. Breaking down contributing influences in this way, the model encourages consideration of dementia as a process where change, adaptation and improvement are possible. Through the identification of such factors, the model also aims to increase

understanding of the dynamic inter-relationship between them, helping to combat the widely held negative view of the ageing process (Spector & Orrell, 2010).

### ***Staff training***

Staff training has been demonstrated as an effective way of improving care for people with dementia (Landreville, Dicaire, Verreault & Levesque, 2005; Goyder, Orrell, Wenborn & Spector, 2012; Teri, Huda, Gibbons, Young & van Leynseele, 2005; Wells, Dawson & Sidani, 2000). It has also been shown to have an impact on elements such as worker satisfaction (Coogle, Head & Parham, 2006), reduced staff turnover and increased staff competence (Broughton et al, 2011; Kuske et al, 2009), as well as on the extent to which staff feel valued by their organisation (Elliott, Scott, Stirling, Martin & Robinson, 2012). The Department of Health (2009) underlined the importance of staff training, setting out a number of objectives in the National Dementia Strategy for ensuring staff are equipped with the necessary skills to care for people with dementia.

A number of reviews of its effectiveness as an intervention have been conducted. Although findings to date have been mixed and illustrate a complex network of interacting influences (Hannan, Norman & Redfern, 2001), the results have been encouraging.

Reviews by Kuske et al (2007) and Aylward, Stolee, Keat and Johncox (2003) found a positive impact from training on staff knowledge, although this was not necessarily found to translate to behaviour change. Similarly, McCabe, Davison and George (2007) found variable effects of training on the behaviour of residents, but positive effects on staff ability to manage challenging behaviour as well as improved job satisfaction and reduced stress. Other studies have also noted the positive impact of training in managing challenging behaviour on staff self-efficacy (Davison et al, 2007; Landreville et al, 2005), attitudes towards people with dementia (Visser et al, 2008), staff-resident interaction (Wells et al, 2000), job

satisfaction (Hannan et al, 2001; Jeon et al, 2012) and formulation skills (Kendjelic et al, 2007; Ingham, Clarke & James, 2008).

### ***Formulation***

Psychological formulations provide a framework from which complex factors that influence a person's wellbeing can be identified and drawn together (Berry, Barrowclough & Wearden, 2009). Understanding the impact and inter-relationship of such factors can help to make sense of the development and maintenance of a person's difficulties, helping to inform the development of idiosyncratic interventions (Ingham et al, 2008).

There is a growing trend for the use of formulation in multi-disciplinary teamwork and it can be a powerful way of influencing a shift in culture towards a more psychosocial perspective (Onyett, 2007). A recent review of the literature (Rainforth & Laurensen, 2014) outlined the potential importance of case formulation as a template to guide clinicians in identifying treatment options, particularly for people with complex needs, including older adults, and training staff in the integration of individualised cognitive-behavioural formulations has been reported to help staff understand the pattern and timeline of a client's difficulties in dementia (Dexter-Smith, 2010). Further benefits such as an increase in team understanding, empathy and reflectiveness have also been reported (Division of Clinical Psychology, 2011). Whilst research on the impact of team formulation in severe and enduring mental health settings (Berry et al, 2009; Summers, 2006), outpatient clinics (Kendjelic & Eells, 2007) and intellectual disability teams (Ingham et al, 2008) has shown benefits such as better staff-patient relationships, staff satisfaction, improved team working and a greater sense of competence, fewer studies have researched the impact in the field of dementia care.

The potential benefits outlined above emphasise the importance of further research, building on work such as that by Dexter-Smith and colleagues (2010),



into the feasibility of formulation as a training intervention to develop staff understanding of biopsychosocial approaches and interventions in dementia care.

### ***Current study***

#### ***Aims***

1. To develop a brief staff training intervention, which aims to support staff in understanding, formulating and planning treatment for people with dementia, based on the BPS model.
2. To pilot the BPS training intervention in three staff group settings: care homes, inpatient wards and a community mental health team (CMHT).
3. To assess the impact of the BPS training intervention on staff attitudes towards people with dementia (ADQ; Lintern, Woods & Phair, 2000), staff sense of competence in their roles (SCIDS; Schepers, Orrell, Shanahan & Spector, 2012) and staff formulation skills as measured by a vignette based outcome measure 'problem solving exercise', developed for the study.
4. To examine the feasibility of the model as a tool for improving clinical practice and its utility to staff varying in degree of prior training and experience.

#### ***Hypotheses***

The BPS training intervention will:

1. Improve staff formulation skills and ability to synthesise case information to develop appropriate interventions for people with dementia.
2. Help improve staff attitudes towards people with dementia.
3. Enable staff to have an increased sense of competence in their roles.

#### ***Method***

##### ***Design***

An experimental within-subjects design was used to investigate the feasibility of the BPS training intervention with staff working in dementia.

##### ***BPS training intervention: development***

In order to translate the key elements of the BPS model of dementia into practice, a training programme was developed for the project.

During the first stage of development, an MSc student at UCL (WW) created a handbook summarising the main elements of the model, designed to be accessible to all staff working with people with dementia. The handbook incorporated the main elements of the BPS model based on the original paper (Spector & Orrell, 2010). It included points to consider in practice and a checklist that may be used to apply the model to clinical cases.

The handbook was piloted with staff from a broad range of backgrounds to assess its utility before being used as a guide to develop the BPS training intervention. The main elements of the handbook were then developed into a PowerPoint presentation. Small group exercises and points for discussion during the training were added at regular intervals to ensure that the training remained as interactive as possible and didactic elements were kept to a minimum. The training received positive feedback following field-testing by the main project supervisor in a care home in Harrogate. Minor modifications were made based on the feedback, including whole group practice in using the model with clinical cases brought for discussion by the team.

Following a review (Spector, Orrell & Goyder, 2013) suggesting a low correlation between training intensity and effectiveness, in addition to the numerous demands on staff working in dementia settings, it was concluded that a low intensity training intervention (6.5 hours) was most appropriate. The BPS training intervention was conducted over two time points, in order to consolidate ideas and allow practice.

Research has shown that adult learners generally prefer the learning process to be interactive (Chapman & Law, 2009) and therefore the second training session (held four weeks after the first) was designed as a workshop. This enabled

revision of key elements and extended opportunity to practice application to clinical cases.

The BPS training intervention needed to be accessible to staff with a range of backgrounds and prior knowledge of dementia. It therefore included some background on dementia, but did not go into detail about its development or symptoms and had a greater focus on key factors as described in the BPS model.

### ***Setting***

#### ***Care homes***

Suitable care homes across London were identified through convenience sampling and searches of the Care Quality Commission database (2013). A total of 91 homes were contacted and invited to take part in the research through an initial invitation letter (Appendix C). All were owned by private care organisations and found to meet the essential standards of quality and safety as defined by the Care Quality Commission (2013). A total of seven responded and the remaining homes were not contacted again. A visit was conducted to five of the care homes and telephone liaison was initiated with a further two. It was not possible to carry out the study in three of the homes due to lack of staff resources (2) and one already taking part in other staff training.

#### ***Community Mental Health Team (CMHT)***

A CMHT based in a central London NHS trust providing specialist care for older people, was identified through personal contacts of the researcher. The lead psychologist within the team was contacted directly and further liaison took place with the team manager.

#### ***Inpatient wards***

Inpatient services based in the same central London NHS trust providing care across four inpatient and two continuing care wards for older adults with complex mental health needs including dementia. The lead psychologist for

inpatient care was initially contacted by the researcher and subsequent liaison was with the inpatient services manager and individual ward managers.

### ***Procedure for recruiting participants***

#### ***Care Homes***

Following visits to the participating care homes, each manager was asked to identify ten staff who were able to attend all training dates and complete follow-up outcome measures. Information sheets (Appendix D) were provided to managers to be disseminated to staff to make informed decisions about participation. Managers were also asked to ensure that staff satisfied the inclusion criteria. A total of four homes providing care for between 35 and 48 residents commenced participation in the study, one of which was subsequently removed due to staffing difficulties.

#### ***CMHT***

The researcher was invited to give a presentation about the study to all staff during the team's weekly business meeting. Information sheets were provided at this time so that interested staff could make an informed decision about participation. Interested staff were asked to give their names to the team manager.

#### ***Inpatient wards***

The lead psychologist for inpatient care put the researcher in touch with the inpatient services manager. The inpatient services manager was then provided with information about the study. Due to logistical difficulties in releasing all staff from any one ward for training, two staff were identified to participate by individual ward managers from each of the four inpatient and two continuing care wards across the trust. Dates for the training were set and individual ward managers were provided with information sheets to disseminate to staff and asked to ensure that selected staff satisfied the inclusion criteria.

All staff were given a gift voucher and a certificate by way of thanks for their participation, following study completion.

### ***Ethical approval***

As the research was deemed to be low risk and involved only staff participants, ethical approval was sought from and granted by UCL Research Ethics Committee Chair's Action (Appendix E). In addition to this, as training sessions for CMHT and inpatient staff took place at NHS sites, approval was also sought and granted from relevant R&D department (Appendix F). The information sheet outlining the study was provided, following which written informed consent (see Appendix G for consent forms) was obtained from the individual staff within the teams participating in the research. All data obtained was anonymised and any identifying information stored separately.

### ***Inclusion criteria***

Staff:

- Working at least three days a week in a clinical setting with people with a diagnosis of dementia.
- Intending to be working in the same clinical setting throughout the study.

### ***Exclusion criteria***

Staff:

- Who did not have a good grasp of both spoken and written English.

### ***Measures***

All staff were required to complete the Approaches to Dementia Questionnaire (ADQ) and the Sense of Competence in Dementia Scale (SCIDS) at baseline, post-training and follow-up time points. In addition they were required to complete the 'problem-solving measure' at baseline and follow-up and the BPS-staff feedback questionnaire (BPS-SFQ) following training completion.

***Approaches to Dementia Questionnaire*** (ADQ – Lintern et al, 2000).

This is a measure of staff attitudes towards people with dementia. It was chosen following research showing that formulation in staff groups can lead to increased optimism for treatment and an increase in the extent to which staff think creatively about a person's difficulties. Respondents rate the extent to which they agree with 19 statements about dementia on a five-point scale ranging from "strongly agree" to "strongly disagree". Responses lead to a total attitudes score and two sub-scale scores measuring "hopefulness" and "person-centeredness". The ADQ has been shown to have good internal consistency and test re-test reliability.

***Sense of Competence in Dementia Care Staff scale*** (SCIDS – Schepers et al, 2012).

The SCIDS measures sense of competence in dementia care staff and consists of 17 statements rated on a four-point scale. It was selected due to research demonstrating an association between increased competence, self-efficacy and an improvement in formulation skills. It has shown good internal consistency and inter-rater reliability across four subscales (professionalism, care challenges, maintaining personhood and building relationships) and a total score of staff competence. The measure has also been shown to have good predictive and convergent validity.

***Vignette-based outcome measure*** – 'Problem-Solving exercise'

The measure was developed alongside the study by two UCL students (MH and LG) and is composed of two short case vignettes detailing persons with dementia who have multiple needs, 'Mary' and 'John' (Appendix H). For each vignette, the completer is asked to list a) the factors that they would consider in working with that person and b) suitable interventions based on these factors. The marking scheme consists of a list of potential points based on inclusion of the main biopsychosocial factors included in the BPS model. People are awarded one or two marks for each, depending on the depth of their answers. The maximum score

achievable is 113. Initial assessments of the measure suggest that it has good inter-rater reliability and internal consistency; however the psychometric properties of the measure are still being reviewed. Data from the present study will help provide further detail about the validity of the measure in detecting change.

### ***BPS model of dementia staff feedback questionnaire (BPS-SFQ)***

The BPS-SFQ was developed for the study based on feedback questionnaires used in similar staff training interventions. The questionnaire included five short questions about the utility of the training and its impact on staff understanding of different factors involved in dementia, rated on a Likert scale of 1 (not at all) to 5 (definitely). The questionnaire also included three open questions providing an opportunity to give qualitative feedback about training impact and ways in which it could be improved (Appendix I).

### ***Procedure***

At the commencement of training, staff were asked to complete the above outcome measures and provide individual demographic information, including their level of clinical experience. Group training on the BPS model of dementia was delivered over two sessions: a training session (4 hours) and a workshop (2.5 hours) provided at each setting by the researcher. Following the workshop, the SCIDS and ADQ were re-administered. Staff were also asked to complete the feedback questionnaire (BPS-SFQ) about their experiences of training and changes in approach to clinical practice. At a follow-up time point four-weeks after the workshop, all outcome measures were re-administered.

### ***Training intervention***

The first training session involved a mixture of didactic teaching about the main principles of the BPS model, in particular emphasising novel elements of the model including the distinction between fixed and tractable factors, and the differing ways such factors may be understood and managed, aiming to instill hope and an understanding of positive changes in dementia. The training also included

detailed case discussion and smaller group exercises in which staff were given printed copies of the BPS model to use as a practical tool to draw together and write down ideas, stimulating discussion about potential interventions for the client. The training was applied flexibly in order for staff to participate actively in discussion, learning from each other's experiences and sharing ideas. It focused on the application of the model to clinical practice using case examples to illustrate the principles.

During the training session, staff were provided with a handbook of guidelines, summarising the training, and a group discussion was held in order to generate ideas about ways in which staff might apply the model, using printed copies of the BPS model as a practical tool in their daily practice. Staff were encouraged to practice using it with other staff members prior to the workshop four weeks later.

Four weeks later, the same group of staff attended a workshop, building on the first training session and providing further opportunity for practice using the BPS model as a practical tool for stimulated discussion, understanding of the individualized factors involved in a person's presentation and potential interventions, facilitated by the researcher.

The workshop allowed a re-cap on the model through group discussion, followed by both small and large group practice in applying the principles learnt in training to clinical practice.

### ***Analysis***

All data were entered and analysed using the Statistical Package for the Social Sciences (SPSS) version 22.0. Preliminary analyses were conducted on the data to test for normality of distribution and to check for outliers. Missing data from teams who completed the intervention was managed using a last observation carried forward approach. A series of repeated-measures ANOVAs was then carried out with outcome measures and time as within subjects factors, to evaluate



changes in scores over time on the ADQ (Lintern et al, 2000) and the SCIDS (Schepers et al, 2012), measured at three time-points (baseline, post workshop and follow-up). The vignette-based outcome measure 'problem-solving exercise' was administered at two time points (baseline and follow-up) and therefore after testing for normality of distribution was analysed using paired-sample t-tests. Analysis of the qualitative answers on the BPS-SFQ was conducted using the main elements of thematic analysis (Braun & Clarke, 2006) in which the main themes were extracted before calculating the number of participants expressing each theme.

### ***Power analysis***

Due to a lack of methodologically equivalent prior research, a conservative effect size ( $f = 0.3$ ) was used to conduct a power analysis for this study. Using G\*Power 3 (Faul, Erdfelder, Lang & Buchner, 2007), it was calculated that a minimum of 27 participants would be required to achieve sufficient power (0.8) at a .05 level of statistical significance.

However, as this was a pilot training intervention with the main aim to test feasibility of the intervention, reaching statistical power was not essential.

### ***Results***

#### ***Preliminary analyses – Outliers and distribution***

Scores on each outcome measure were converted into standard scores and visually screened for outliers. No outliers were identified at baseline or post-training time points. An outlier identified at the follow-up time point was checked for error in data entry and subsequently removed.

The distribution of all variables was assessed for normality. Histograms with normal distribution curves were visually checked and standard scores calculated for skewness and kurtosis (score/S.E.). Any variables in which the resultant value was above 1.96 ( $p=0.05$ ) were subsequently transformed.

Post-training, the ‘professionalism’ subscale of the SCIDS and vignette two (Mary) on the ‘problem-solving exercise’ were positively skewed. At follow-up the ‘hope’ subscale of the ADQ was negatively skewed. All three subscales were transformed at all time points using the square root of values (with data first being reflected where a negative skew occurred) to result in a normal distribution.

**Baseline characteristics**

The BPS training intervention was delivered to 37 staff working across three settings (11 CMHT staff, 8 inpatient staff and 18 care home staff) and a variety of professional backgrounds. The majority were female (78%), aged 45-54 (43%), from non-White British backgrounds (70%) and had mean of 9 years working in dementia care (SD 6.1). Demographic characteristics are presented in Table 1 below.

Table 1: *Demographic characteristics of 37 staff participants*

Characteristic	N	%	Mean	SD
<i>Gender:</i>				
Female	29	78		
Male	8	22		
<i>Age:</i>				
18-24	3	8		
25-34	9	24		
35-44	5	14		
45-54	16	43		
55+	4	11		
<i>Average time working dementia (years)</i>			9.0	6.1
CMHT			8.4	5.6
Inpatient			12.5	5.7
Care Homes			7.8	6.3
<i>Ethnic Group:</i>				
Black (British, Caribbean, African, other)	16	43		
White (British, Irish, other)	11	30		

Asian (British, Indian, Pakistani, Bangladeshi)	4	11
Do not wish to specify	3	8
Other	3	8
<i>Job Title:</i>		
Health Care Assistant	12	32
Team Leader	8	22
Psychiatric Nurse	7	19
Occupational Therapist	2	5
Support Worker	2	5
Activity Coordinator	2	5
Student Nurse	2	5
Physiotherapist	1	3
Social Worker	1	3

### ***BPS training intervention outcomes***

Means and standard deviations for outcome measures at each time point are presented in Table 2.

Table 2: *Total means and standard deviations for all outcome measures*

Measure (subscales)		Mean (SD) (n = 37)	Mean change from baseline
<b>ADQ</b>			
<i>Total</i>	Baseline	78.2 (6.0)	
	Post	79.9 (5.9)	+1.7
	Follow-up	78.7 (7.1)	+0.5
<i>(Hope)</i>	Baseline	28.8 (4.0)	
	Post	29.9 (3.7)	+1.1
	Follow-up	29.6 (4.3)	+0.8
<i>(Person centered)</i>	Baseline	49.4 (4.1)	
	Post	50.0 (3.5)	+0.6
	Follow-up	49.1 (4.3)	-0.3
<b>SCIDS</b>			
<i>Total</i>	Baseline	54.2 (7.9)	
	Post	55.0 (7.2)	+0.8
	Follow-up	55.2 (7.4)	+1.0
<i>(Professionalism)</i>	Baseline	16.7 (2.3)	
	Post	16.9 (2.0)	+0.2
	Follow-up	16.9 (2.4)	+0.2

<i>(Building relationships)</i>	Baseline	11.9 (2.1)	
	Post	12.3 (2.0)	+0.4
	Follow-up	12.2 (1.8)	+0.3
<i>(Care challenges)</i>	Baseline	12.2 (2.7)	
	Post	12.4 (2.5)	+0.2
	Follow-up	12.6 (2.6)	+0.4
<i>(Sustaining personhood)</i>	Baseline	13.4 (2.1)	
	Post	13.5 (1.8)	+0.1
	Follow-up	13.4 (1.9)	+0.0
<b>Problem solving exercise</b>			
<i>Total</i>			
	Baseline	19.6 (8.1)	
	Post	24.6 (10.1)	+5.0
<i>Vignette 1 (Mary)</i>			
	Baseline	10.7 (4.9)	
	Post	13.9 (5.7)	+3.2
<i>Vignette 2 (John)</i>			
	Baseline	8.9 (4.1)	
	Post	10.8 (5.2)	+1.9

**Hypothesis 1: The BPS training intervention will improve formulation skills and ability to synthesise case information to develop appropriate interventions.**

Data was collected at baseline and follow-up time points and analysed using paired samples t-tests. To control for the increased risk in Type 1 error caused by multiple analyses, a more stringent alpha level of  $p=0.01$  was selected.

At this level, *total scores* for the *problem-solving exercise* were found to increase significantly following the BPS training intervention,  $t(36)=-3.51$ ,  $p=.001$ . Magnitude of change following the training intervention was categorised according to Cohen (1992). A medium effect size ( $d = 0.59$ ) was observed (correcting for dependence between means).

Early tests of the psychometric properties indicated a significant difference in scores obtained for vignette 1 and vignette 2 and therefore they were also

assessed individually. A significant increase was found for vignette 1,  $t(36)=-3.97$ ,  $p=.000$ , but not for vignette 2 at this level,  $t(36)=-2.5$ ,  $p=0.02$ .

A repeated-measures analysis of variance was then conducted on outcome measures (ADQ and SCIDS) for hypotheses 2 and 3, with *time* (baseline, post-training and follow-up) as the within-subjects factor. The results are summarised below.

**Hypothesis 2: The BPS training intervention will help improve staff attitudes towards people with dementia.**

Overall, staff were found to hold a positive approach towards people with dementia, with scores clustered around the middle to higher end of the rating scale (Mean = 78.2, SD = 6.0). No significant difference was found in overall approach to dementia between baseline, post-training and follow-up time points,  $F(1,36)=2.55, p=.09$ . In addition to this, there was no significant difference found on subscales of hope,  $F(1,35)=2.33, p=.11$  or person-centeredness,  $F(1,36)=1.29, p=.28$ . Positive trends were noted for *total* and subscale scores between baseline and post-training time points, however, this was not consistently maintained at follow-up (see Table 2).

**Hypothesis 3: The BPS training intervention will enable staff to have an increased sense of competence in their roles.**

Overall, staff were found to report a relatively high sense of competence at baseline with a mean score of 54.2 (SD=7.9). There was no significant difference found between scores at baseline, post-training and follow-up time points on the total score,  $F(1,36)=.68, p=.509$ , or any of the subscales: *professionalism*,  $F(1,36)=.43, p=.65$ ; *building relationships*,  $F(1,36)=1.15, p=.32$ ; *care challenges*,  $F(1,36)=1.10, p=.34$  or *sustaining personhood*,  $F(1,36)=.03, p=.98$ . Small mean increases were noted for the total score and all subscales between baseline and post-training time points. The mean increase was further increased at follow-up on *total score* and *care challenges* subscale, maintained on the *professionalism*

subscale, but not maintained for *building relationships* or *sustaining personhood* subscales (see Table 2).

### ***Preliminary outcome differences between staff settings***

It was not possible to statistically analyse the differences between staff settings due to the pilot nature of the study and the small sample sizes in each staff group. However, means, standard deviations and mean change from baseline for each staff group are presented in Tables 3 to 5. In addition, quantitative and qualitative data obtained from staff feedback questionnaire (BPS-SFQ) are presented in Tables 6 to 9.

Results suggest that all groups showed an improvement in approach to dementia post-training, with inpatient staff showing the greatest change (+2.1). Whilst some improvement from baseline was maintained at follow-up for CMHT (+0.9) and care home staff (+1.0), this was not found to be the case for inpatient staff (-1.4). In addition, care home staff showed the greatest improvement on the *'hope'* subscale at follow-up (+1.4) and CMHT staff, the greatest improvement on the *'person centered'* subscale at follow-up (+0.6).

Inpatient staff showed the greatest total change (+4.3) in sense of competence which continued to improve at follow-up (+4.9). The greatest mean change for each subscale was also noted for inpatient staff. Overall, CMHT staff showed a small increase between baseline and follow-up (+1.0). Care home staff showed a small decrease (-0.7) in sense of competence following training.

Overall, all staff groups showed an improvement on the *'problem-solving exercise'* following training. CMHT staff showed the greatest mean change (+8.0), followed by inpatient staff (+5.5). The smallest mean change was noted for care home staff (+3.0). At baseline, CMHT staff scored lower than inpatient staff.

Table 3: Means, standard deviations and mean change from baseline (ADQ).

<b>ADQ</b>	<b>CMHT</b> (n=11) Mean (SD)	Mean change	<b>Inpatient</b> (n=8) Mean (SD)	Mean change	<b>Care homes</b> (n=18) Mean (SD)	Mean change
<i>Total</i>						
Baseline	79.9 (5.4)		76.9 (7.1)		77.8 (5.9)	
Post	81.7 (3.7)	+1.8	79.0 (7.6)	+2.1	79.2 (6.2)	+1.4
Follow-up	80.8 (6.5)	+0.9	75.5 (10.3)	-1.4	78.8 (5.6)	+1.0
<i>Hope</i>						
Baseline	30.6 (3.2)		27.8 (4.5)		28.2 (4.1)	
Post	30.3 (2.5)	-0.3	28.9 (5.2)	+1.1	30.1 (3.7)	+1.9
Follow-up	30.9 (3.9)	+0.3	27.6 (6.5)	-0.2	29.6 (3.0)	+1.4
<i>PC</i>						
Baseline	49.3 (4.5)		49.1 (4.0)		49.6 (4.1)	
Post	51.4 (2.4)	+2.1	50.1 (2.9)	+1.0	49.1 (4.1)	-0.5
Follow-up	49.9 (3.3)	+0.6	47.9 (5.7)	-1.2	49.2 (4.2)	-0.4

\*Note: PC = 'person centered'

Table 4: Means, standard deviations and mean change from baseline (SCIDS).

<b>SCIDS</b>	<b>CMHT</b> (n=11) Mean (SD)	Mean change	<b>Inpatient</b> (n=8) Mean (SD)	Mean change	<b>Care homes</b> (n=18) Mean (SD)	Mean change
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<i>Total</i>						
Baseline	49.6 (7.4)		53.3 (8.3)		57.3 (6.9)	
Post	50.8 (6.1)	+1.2	57.6 (6.8)	+4.3	56.6 (7.1)	-0.7
Follow-up	50.6 (7.8)	+1.0	58.4 (7.1)	+4.9	56.6 (6.3)	-0.7
<i>PF</i>						
Baseline	15.1 (1.9)		16.3 (2.5)		17.8 (1.9)	
Post	16.4 (1.7)	+1.3	17.1 (2.2)	+0.8	17.2 (2.1)	-0.6
Follow-up	15.6 (2.6)	+0.5	17.9 (2.1)	+1.6	17.3 (2.1)	-0.5
<i>BR</i>						
Baseline	11.6 (2.2)		11.6 (2.2)		12.1 (1.9)	
Post	11.9 (1.9)	+0.3	12.9 (1.9)	+1.3	12.3 (2.2)	+0.2
Follow-up	11.9 (1.8)	+0.3	12.6 (2.3)	+1.0	12.2 (1.6)	+0.1
<i>CC</i>						
Baseline	10.6 (2.6)		12.0 (2.3)		13.3 (2.5)	
Post	10.5 (2.5)	-0.1	13.5 (2.4)	+1.5	13.1 (1.9)	+0.2
Follow-up	11.0 (2.8)	+0.4	13.3 (2.4)	+1.3	13.3 (2.1)	+0.0
<i>SP</i>						
Baseline	12.4 (2.4)		13.4 (2.3)		14.1 (1.7)	
Post	12.3 (1.3)	-0.1	14.4 (1.3)	+1.0	13.8 (1.9)	-0.3
Follow-up	12.2 (2.2)	-0.2	14.6 (1.4)	+1.2	13.6 (1.7)	-0.5

\*Note: PF = professionalism, BR = building relationships, CC = care challenges, SP = sustaining personhood.

Table 5: Means, standard deviations and mean change from baseline (Problem solving exercise).

<b>Problem solving exercise</b>	<b>CMHT</b> (n=11) Mean (SD)	Mean change	<b>Inpatient</b> (n=8) Mean (SD)	Mean change	<b>Care homes</b> (n=18) Mean (SD)	Mean change
<b>Total</b>						
Baseline	20.5 (9.4)		23.1 (9.2)		17.5 (6.5)	
Post	28.5 (10.1)	+8.0	28.6 (13.2)	+5.5	20.5 (7.0)	+3.0
<b>Vignette 1 (Mary)</b>						
Baseline	11.6 (5.0)		12.8 (6.9)		9.2 (3.4)	
Post	15.9 (5.2)	+4.3	17.3 (7.4)	+4.5	11.2 (3.9)	+2.0
<b>Vignette 2 (John)</b>						
Baseline	8.8 (5.4)		10.4 (3.2)		8.3 (3.5)	
Post	12.8 (5.7)	+4.0	11.4 (6.6)	+1.0	9.3 (3.7)	+1.0

### **BPS model of dementia staff feedback questionnaire (BPS-SFQ)**

Anonymous feedback forms were received from 28 staff who completed the BPS training intervention. Overall, the results suggested that all staff found the training to have helped improve their understanding of the different factors involved in dementia to some degree. The majority of staff (89.2%) rated that training had



'definitely' or 'very much' improved their knowledge, also increasing their consideration of different biological, psychological and social factors (96.4%). Staff also indicated that the training would 'very much' or 'definitely' help them to think differently about their work (82.2%). More than half of the respondents felt the training had 'definitely' made them feel more confident in their work (57.1%), denoting that they would be able to make use of the principles learned in training (53.6%). A summary of the results can be found in Tables 6 to 9, below.

The BPS training intervention was rated most highly by staff from inpatient settings, with 85.7% rating that the training had 'definitely' improved their understanding of dementia in contrast to 50% of care home staff and 42.9% of CMHT staff. The majority of inpatient staff (71.4%) also rated 'definitely' feeling more confident as a result of training compared to 64.3% of care home staff and 28.6% of CMHT staff. In addition to this, 85.7% of inpatient staff reported that they would 'definitely' make use of the training in their work, compared to 57.1% of care home staff and 14.3% of CMHT staff.

Twenty-eight staff answered the first open question, which asked for examples of the ways in which training would change the way they worked with many giving a number of responses to this question. Twenty-five staff answered the second open question about which aspects of the training they found most helpful, and twenty-one responded to the third open question about ways in which the training could be improved. A summary of the qualitative responses given can be found in Tables 7,8 and 9 below.

Table 6: Quantitative feedback from staff in each setting

Question.	Staff (n = 28)	Not at all 1/5 (% of total)	A little 2/5 (% of total)	Somewhat 3/5 (% of total)	Very much so 4/5 (% of total)	Definitely 5/5 (% of total)
Did the training...?						
...improve your understanding of the different factors involved in dementia?	<b>Total</b>	<b>0</b>	<b>0</b>	<b>3 (10.7%)</b>	<b>9 (32.1%)</b>	<b>16 (57.1%)</b>
	<i>CMHT</i>	0	0	2 (28.6%)	2 (28.6%)	3 (42.9%)
	<i>Inpatient</i>	0	0	0	1 (14.3%)	6 (85.7%)
	<i>Care home</i>	0	0	1 (7.1%)	6 (42.9%)	7 (50.0%)
...help you take biological, psychological and social factors into account?	<b>Total</b>	<b>0</b>	<b>0</b>	<b>1 (3.6%)</b>	<b>13 (46.4%)</b>	<b>14 (50.0%)</b>
	<i>CMHT</i>	0	0	1 (14.3%)	4 (57.1%)	2 (28.6%)
	<i>Inpatient</i>	0	0	0	2 (28.6%)	5 (71.4%)
	<i>Care home</i>	0	0	0	7 (50.0%)	7 (50.0%)
...help you think differently about your work?	<b>Total</b>	<b>0</b>	<b>0</b>	<b>5 (17.9%)</b>	<b>12 (42.9%)</b>	<b>11 (39.3%)</b>
	<i>CMHT</i>	0	0	4 (57.1%)	2 (28.6%)	1 (14.3%)
	<i>Inpatient</i>	0	0	0	3 (42.9%)	4 (57.1%)
	<i>Care home</i>	0	0	1 (7.1%)	7 (50.0%)	6 (42.9%)
...help you feel more confident in your work?	<b>Total</b>	<b>0</b>	<b>0</b>	<b>4 (14.3%)</b>	<b>8 (28.6%)</b>	<b>16 (57.1%)</b>
	<i>CMHT</i>	0	0	4 (57.1%)	1 (14.3%)	2 (28.6%)
	<i>Inpatient</i>	0	0	0	2 (28.6%)	5 (71.4%)
	<i>Care home</i>	0	0	0	5 (35.7%)	9 (64.3%)
Do you think you will make use of the training in your work?	<b>Total</b>	<b>0</b>	<b>1 (3.6%)</b>	<b>3 (10.7%)</b>	<b>9 (32.1%)</b>	<b>15 (53.6%)</b>
	<i>CMHT</i>	0	1 (14.3%)	2 (28.6%)	3 (42.9%)	1 (14.3%)
	<i>Inpatient</i>	0	0	0	1 (14.3%)	6 (85.7%)
	<i>Care home</i>	0	0	1 (7.1%)	5 (35.7%)	8 (57.1%)

Table 7: Qualitative feedback from 28 staff – In what ways will the training change the way you work?

Themes	N	Quotations
Designing better interventions	5	<i>'It will help me with the level of care given to dementia residents in my work place and to design appropriate interventions to meet the needs of residents.'</i>
Greater consideration of the person with dementia's background	6	<i>'Looking at why people behave the way they do and what has contributed to their make-up in life.'</i>
Taking a more holistic approach	9	<i>'It has opened my mind to a new model of care as I tend to use the medical model far too much; I like this model for the holistic approach.'</i>
Passing on knowledge to others	2	<i>'Assisting other staff members with my knowledge and understanding.'</i>
Taking a more person-centered approach	12	<i>'The model helped me understand the needs of a person suffering from dementia.'</i>
Improving working style	5	<i>'I am experienced but it will help me to structure the way I already work.'</i>
A better understanding of multi-disciplinary team roles	1	<i>'Better understanding of MDT roles, reassurance of current work being done.'</i>

Table 8: *Qualitative feedback from 25 staff – Which aspects of the training did you find most helpful?*

Themes	N	Quotations
Using the structure of the BPS model	5	<i>'Providing a structured approach.'</i> <i>'Clear framework with detailed explanation.'</i>
The case discussions	10	<i>'Using the model with actual residents'.</i>
Thinking about possible interventions	4	<i>'It helped me to understand the cycle that we can use to determine which part of the problem we can adjust or approach differently to give a better quality of care to the dementia patient.'</i>
All of it	5	<i>'Enjoyed both days and the content.'</i>
New ideas and different points of view	3	<i>'Especially being in small groups with carers and nurses discussing issues with service users.'</i>
Reflection on own work	2	<i>'It made me look back on the treatment I gave them and helped me reflect on my practice at work.'</i>

Themes	N	Quotations
No improvements needed	11	<i>'I don't think the training needs improving. It was very relaxed and I felt I was allowed to share and learn new skills with my colleagues.'</i>
To have more regular training or for the training to be longer so that skills may be refreshed	6	<i>'By attending the training once a month to improve the knowledge of dementia.'</i>
More training materials	1	<i>'To have more training materials/videos/examples.'</i>
More trainees	1	<i>'More trainees, more interaction and discussion.'</i>
Tailor the training to people's skills	1	<i>'If it was focused on people's level of knowledge, skills etc. But it's also good to have a mix.'</i>

Table 9:	Include elements on how to work with people's families	1	<i>'Maybe learning how to handle families.'</i>
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*Qualitative feedback from 21 staff – In what ways could the training be improved?*

## ***Discussion***

### ***Key findings***

The ability of staff to understand, formulate and develop interventions for people with dementia increased significantly following the BPS training intervention, suggesting that the BPS model of dementia may contribute to improvement in one's ability to incorporate information from biological, psychological and social domains, in the development of treatment plans. Although a small improvement in staff approach to dementia was found following training, this was not consistently maintained at follow-up and contrary to the hypothesis, the degree of improvement was not found to be significant. Similarly, although there was a small overall improvement in staff sense of competence following training, this was not found to be significant. Training feedback provides further support for the evidence of small improvements in staff approach to dementia and sense of competence. All staff reported that training had improved their understanding of dementia, with the majority also reporting that training had changed their attitude to their work, enabling a more holistic approach and fostering greater confidence in their roles. The triangulation of quantitative and qualitative data from a variety of sources provides preliminary evidence that the BPS training intervention may act as a tool for helping to improve clinical practice.

### ***Findings in the context of literature***

Whilst many studies have assessed the impact of training on staff, the majority have focused on well-being (Clare et al, 2013; Magai, Cohen & Gomberg, 2002) and organisational factors such as staff burnout (Jeon et al, 2012; Kuske et al, 2009, Richardson, Kitchen & Livingston, 2004). The current study aimed to build on previous findings of the utility of training staff in psychological formulation in dementia (Dexter-Smith, 2010) to examine the feasibility of a training intervention on the ability of staff use such formulations to develop interventions.

A recent literature review on case formulation (Rainforth & Laurenson, 2014), highlights its potential importance as a training intervention for staff working with people with complex needs, including older adults, guiding clinicians in identifying treatment options and areas for intervention. Development of such an approach represents an increasing drive to move away from a reliance on medical treatment, underlining the importance of multi-disciplinary intervention (Rainforth & Laurenson, 2014).

The current findings support research from other clinical settings. Ingham et al (2008), found that training inpatient staff working in an intellectual disability service on case formulation increased their ability to identify biopsychosocial factors. Kendjelic & Eells (2007) also found that case formulation training led to the production of higher quality formulations and an increased ability to identify factors contributing to a client's difficulties (Eells, Lombart, Kendjelic, Turner and Lucas, 2005). However, the subsequent relationship of formulation to intervention is under-researched (Ivey, 2006). The current findings go some way to addressing this gap; providing preliminary evidence for the effectiveness of training in the development of biopsychosocial treatment plans.

Kitwood (1997) underlined the importance of a person-centered approach in dementia care. Evidence suggests that formulation affords a greater flexibility to treatment with an increased focus on the individual's idiosyncratic needs (Rainforth & Laurenson, 2014). In addition, Restifo (2010) suggests that formulation can lead to enhanced therapeutic alliance, inhibiting unhelpful perceptions of challenging behaviour. Findings from the literature, including the present study, therefore emphasise its potential as an intervention.

The Biopsychosocial model of dementia (Spector & Orrell, 2010) aims to build on existing biopsychosocial models of dementia (eg: Kitwood, 1997) to provide a novel framework through which a theoretical understanding of the biopsychosocial nature of dementia, can be applied to practice. It also aims to draw a distinction

between fixed and tractable factor in order to instill a sense of hope in staff that improvement is possible, whilst acknowledging the impact of factors beyond staff control.

Training programmes in individualised formulation such as that by Dexter-Smith (2010) and Ingham et al (1998) primarily draw on existing CBT-based psychological formulations. The Biopsychosocial model of dementia aims to incorporate psychological elements alongside those that may be more familiar to staff from a range of backgrounds, increasing its accessibility. Qualitative feedback from the current study indicated that staff from a range of disciplines felt that training had changed their approach, in particular through the development of a greater understanding of a person's behavior, suggesting that staff felt able to apply the ideas to their work, regardless of the setting in which they worked.

Due to the pilot nature of this study, it was not possible to conduct a detailed analysis of BPS training utility across staff settings. However, the assimilation of descriptive statistics, indicated that inpatient staff gained the greatest benefit in both approach to dementia (post-training) and sense of competence, also rating the training as the most helpful in every category. Previous research suggests an existing lack of training in inpatient teams (Chapman & Law, 2009; Ingham et al, 2008), which alongside evidence provided by this study suggests that the BPS training intervention could be of particular value in this setting.

### ***Feasibility***

There were a number of considerations for future feasibility encountered in the implementation of this research project, primarily with measure completion and care home recruitment. Although there were few difficulties in identifying care homes, commitment from care home managers varied widely, resulting in one care home being removed from the study due to failure to enable staff to attend the second training session. Encouraging managers to attend appeared the most successful strategy in sample retention; but greater assessment of existing



organisational factors would be of benefit, and the recruitment strategy may require a degree of modification. Despite this, of the 43 staff originally recruited, 86% remained in the study, giving an attrition rate of 14% overall. Of the total sample from teams remaining in the study (n=37), 86% attended all training sessions and 84% completed all measures at follow-up. Six staff members (16%) dropped out either due to staffing difficulties (3), leaving their roles earlier than expected (2) or long-term sick leave (1), suggesting that overall the intervention was acceptable to staff.

A number of challenges were also encountered in the completion of the 'problem-solving exercise' measure, developed for the study. Although piloted previously, many staff required more time to complete it than expected, leading to a number of incomplete answers and impacting on response reliability. In addition, the assimilation of complex material into extended written answers might have disadvantaged staff for whom English was not a first language. Findings from early tests of measure validity also showed significantly higher scores on vignette 1, suggesting that staff may have become fatigued or had insufficient time, and it would be important to consider whether both vignettes are necessary.

Difficulties with follow-up measure completion impacted on the collection time frame and meant it was not always possible to be present during completion. As a result, it was difficult to monitor whether staff used other resources to help complete the questionnaires. However, the measure was not considered to be a test of what staff had learnt during training, but of how skills were applied to real-life clinical information, closely mirroring the intended use of the model following training. It would also be important to consider the competing demands on staff time and skills in measure collection (Rainforth & Laurenson, 2014).

### ***Limitations***

This was a feasibility study, piloting the evaluation of a theoretical model. As a result, there were a number of design limitations. A major limitation is that one of the main outcome measures is still undergoing development. Early tests of its

psychometric properties show good internal consistency and inter-rater reliability, indicating that it can measure staff ability to conceptualise biopsychosocial information about dementia. However, further assessment of its test-retest reliability would be required in order to fully establish its validity as a measure to capture change.

Similarly, the overall sample was small, meaning that it may have been underpowered to detect effects. It was also uncontrolled and there were too few staff in each setting to draw conclusions about differences in utility. There were also limitations in the completion of outcome measures. All measures were self-report and therefore relied on staff having an accurate perception of their own skills and competence. The feasibility of the training was in part assessed through a staff feedback questionnaire and whilst the results were anonymised, scores may have been inflated due to influence of demand characteristics.

In addition, training implementation and questionnaire collection were completed by the researcher. The use of blinded assessors in future effectiveness studies would ensure that scoring bias was minimised. At baseline, scores on the ADQ (Lintern et al, 2000) and SCIDS (Schepers et al, 2012) were found to be clustered around the middle to upper end of the scale, and it is therefore possible that ceiling effects contributed to the non-significant change. Such effects have also been observed on the SCIDS in previous research (Goyder et al, 2012).

### ***Implications for future research***

This study has demonstrated that the BPS model of dementia may have a beneficial impact on the ability of staff to develop formulations and interventions for people with dementia following the BPS training intervention. The results also demonstrate that training in the model may lead to a change in approach and a greater sense of competence in the work. However, due to the small sample size, such findings would need to be replicated with a larger number of participants. A larger sample would also enable statistical comparisons to be made about the utility

of the training for staff working in different settings. It would also be pertinent for future research to examine the variables associated with the success of training, namely staff motivation, self-efficacy and management support (Elliott et al, 2012). Whilst a recent review by Spector et al (2013) highlighted the importance of regular supervision sessions in improving the overall effectiveness of training, other studies have not found this to be the case (Clare et al, 2013; Goyder et al, 2012; Teri et al, 2005), instead underlining the importance of management support and other organisational factors. As the length of the BPS training intervention is relatively short (6.5 hours) in comparison to other staff training interventions in the field, it would be interesting for further research to assess the extent to which an extended training programme with supplementary supervision sessions could add to the results from this study and to examine the mechanism through which such changes may occur.

A number of additional benefits have been found in previous research on case formulation including an increase in empathy and reflectiveness (Division of Clinical Psychology, 2011) and better staff-patient relationships (Ingham et al, 2008). It is possible that training did not directly impact on the measures selected for this research. Using measures of alternative constructs in future research would help broaden the assessment of its impact. Following demonstration of the effectiveness as a training programme for staff, it would also be interesting and important to assess the impact of training for people with dementia.

The present study comprises a highly experienced sample. It would also be interesting for further research to assess the utility of the BPS training intervention with less experienced staff. Including such training early in a person's working life may help establish a more psychosocial intervention culture in the treatment of people with dementia.

### ***Implications for clinical practice***

This is the first known study to investigate the impact of staff training on the ability of staff to develop formulations and interventions for people with dementia, and therefore has potentially important implications for future clinical practice. The results suggest that the BPS training intervention is valuable in improving staff formulation skills, particularly in inpatient settings, given the right level of managerial support. Training feedback suggests that all staff found the training increased their ability to consider biological and psychosocial factors, increasing confidence in their roles and impacting on their way of working. Kendjelic & Eells (2007) point to the importance of regular skills practice in the maintenance of training gains. Qualitative feedback also indicated that staff would like continued input, with refresher sessions, and it would therefore be important to work closely with staff to develop a strategy for incorporating the use of the model into clinical practice. Rainforth & Laurenson (2014) also highlight the importance of greater feedback between supervisors and trainees. This could be incorporated into the BPS training intervention to maximize ongoing learning. Whilst the training programme is relatively short, one of the strengths of the BPS framework is its relative simplicity and the ease with which it allows complex case information to be assimilated. The BPS training intervention may therefore benefit from being delivered over a longer time frame in the future, with skills training workshops for managers to facilitate use of the model following training.

### ***Conclusion***

The present study has demonstrated some encouraging results, providing support for the utility of the BPS model of dementia as a training intervention for a range of staff working in dementia. It has shown that even with a brief intervention, the ability of staff to understand, draw together ideas and develop interventions for people with dementia can be improved, and this may have wide ranging implications for improving dementia care in the future. Whilst the results should be interpreted with caution due to the uncontrolled, pilot nature of the study, they provide a range

of both quantitative and qualitative evidence in support of the BPS training intervention which may be built on in subsequent research.

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## Part 3: Critical Appraisal

## ***Introduction***

This review will focus on several areas identified during the process of conducting the current research project that may benefit from greater exploration. It will reflect on the process of piloting a staff training intervention and the ways in which it was received across different settings, exploring these differences in the context of theory. It will also reflect on the impact of conducting research using a newly developed measure followed by reflection on the process of evaluating theoretical models in practice.

## ***Piloting a staff training intervention***

The practical application of the Biopsychosocial (BPS) model of dementia (Spector & Orrell, 2010) had not been formally evaluated prior to this research. The primary aim of the project was to assess the utility of the model as a tool for use in clinical practice, in addition, assessing its use across a range of settings with staff from different backgrounds. Settings were chosen to represent the range of services that people with dementia might come into contact with and comprised inpatient wards, residential care homes, and a community mental health team (CMHT). There were found to be a number of differences across settings in the process of conducting the study, primarily with recruitment, the way in which the training was received and potential barriers to its future implementation. Such observations and consideration of its future utility will be discussed in the context of transfer of learning theory (Ford & Weissbein, 1997).

## ***Transfer of learning theory***

The aim of training staff is the transfer of learning to the workplace (De Rijdt, Stes, van der Vleuten & Dochy, 2013). It is important to consider the factors that facilitate this, and the way in which training may enable continuing improvements in clinical practice. The importance of this has been highlighted and many researchers have explored the optimum conditions through which transfer of learning may take place (Elliott, Scott, Stirling, Martin & Robinson, 2012). Following a review of the

literature, Baldwin and Ford (1988) identified three key components in this process: 1) Training design, referring to the objectives and methods of teaching and to the relevance of the content, 2) Trainee characteristics, referring to the ability, motivation and personality of the participant and 3) Work environment factors, referring to support from managers and peers, and opportunities to continue learned behaviours in practice (Blume, Ford, Baldwin & Huang, 2010; Ford & Weissbein, 1997). Consideration of such factors at all stages of the training process, may help to make predictions about how likely a training intervention is to have lasting effects in ongoing clinical practice. The components identified by Baldwin and Ford (1988) will be used to understand and reflect on the differential success of training, processes of engagement across settings and the impact on the way in which learning may be subsequently transferred.

### ***Feasibility of training across settings***

#### ***Training design***

The training was designed to be accessible to staff from a range of backgrounds. In accordance with research indicating that adult learners prefer interactive training programmes (Chapman & Law, 2009), didactic elements were kept to a minimum and a number of both small and large group exercises were included. Qualitative feedback from staff suggested that the methods of training used were felt to be appropriate for the topic, with reports that staff felt able to share ideas and learn new skills. The degree to which the objectives and content of training were considered to be relevant, however, varied somewhat between settings. The subsequent impact on its effectiveness and consideration of its utility for the future will be discussed below.

Inpatient wards caring for people with dementia include staff from a range of disciplines, such as nurses, care assistants and occupational therapists. Traditionally, teams are led by psychiatrists and work in close association with the medical model. Staff in this setting were therefore used to working alongside professionals from

different backgrounds; however they had somewhat limited experience of incorporating ideas from different perspectives to develop holistic treatment plans. The training provided staff with the opportunity to share their existing knowledge, whilst consolidating skills in synthesising biopsychosocial ideas to develop interventions, and therefore the content was highly relevant in this setting.

CMHTs also consist of staff from a variety of disciplines. In contrast to the majority of inpatient settings, there is a greater focus on psychosocial intervention and inter-disciplinary work. Whilst the BPS model itself was a novel framework and most staff reported that the training provided valuable time to think about cases in detail, the principles were already very familiar. Case discussions incorporating biological, social and psychological factors are part of day-to-day clinical practice and therefore training had somewhat less impact in this setting. If the model were to be used in this setting in the future, the training objectives would require adjustment and would benefit from the inclusion of a more advanced level of theory and increased opportunity for practical application of the framework.

Many care assistants working in care homes have few formal qualifications (McCabe, Davison & George, 2007) and may not frequently have exposure to working with staff from other disciplines. The World Alzheimer Report (2013) identified a number of areas in which staff working in care homes desired further training, including the management of challenging behaviour. The incorporation of biopsychosocial ideas in clinical practice was largely novel in this context and as the BPS model can be readily applied to understanding and developing interventions for managing challenging behaviour, the training content was considered to be highly relevant.

The training offered in this study presumed a degree of prior knowledge of dementia and its implications. Although awareness of the amount of training required for care home staff is increasing, reports indicate that 24% of care homes still fail to meet the minimum criteria (World Alzheimer Report, 2013). Staff therefore had



variable levels of prior knowledge. Tailoring training in the future to increase its accessibility by incorporating a greater amount of basic information about the development and course of dementia would be beneficial. Consideration of the impact of cultural factors on the way dementia may be understood by different staff, and the extent to which the training content was viewed as relevant as a result, is also of particular importance in this setting, where there was a greater proportion of staff from non-British backgrounds.

### ***Trainee characteristics***

Staff in both inpatient and CMHT settings demonstrated a high level of engagement and motivation, contributing enthusiastically to case discussions and showing commitment to putting ideas into practice. Inpatient staff were the only group to report using the model between training sessions, showing a high level of interest in the training content. The inpatient sample comprised two members of staff from each of a number of wards across an NHS trust, put forward for the training by their managers. Whilst it is possible that particularly motivated staff were selected, staff characteristics such as motivation and self-efficacy may have increased the likelihood of transfer of learning to staff in their respective teams following training. A cascade approach to training such as this can enable a large number of staff to gain knowledge and may be a way of maximising the transfer of training in the future. However, Chapman and Law (2009) point to the importance of considering the extra demands that a 'trickle-down' approach may place on staff, and it would be important to consider the level of work environment support in facilitating this process.

Both teams demonstrated high self-efficacy and a sense that work they did could make a difference. Such characteristics are important for engagement and subsequent implementation of ideas, and were evidenced by the absence of difficulties with recruitment or attrition.

There were greater difficulties with engagement and attrition in the recruitment of care homes. Whilst a number of individual staff were engaged and motivated, this

varied; and differences in the level of support from the working environment alongside the culture of each care home, impacted on important characteristics such as self-efficacy and the likelihood that learning would change practice.

### ***Work environment factors***

The emphasis on continuing professional development in NHS settings meant that the working environment was largely facilitative for both inpatient and CMHT settings. Support from managers enabled both the organisation of training and the allocation of supernumerary time to attend training across several time points, where necessary. Investment in staff development is a key factor associated with optimal transfer of learning (Ford & Weissbein, 1997), increasing important trainee characteristics such as self-efficacy (Eisenberger, Huntington, Hutchison & Sowa, 1986) in the application of knowledge following training.

The degree to which staff were facilitated to engage with training in care homes varied widely, and the subsequent impact on trainee motivation and self-efficacy appeared to be of particular importance in this context.

In two care homes where managers did not participate, training success was compromised. In support of previous research on the importance of organisational factors (Jeon et al, 2012; Visser et al, 2008), varying support from senior management in this study had a demonstrable impact on trainee motivation and attrition, resulting in one home being removed from the study due to staffing difficulties and lack of attendance. Although the relevance of the training was high in this setting, and there were no difficulties in initial recruitment of the care homes, it was often difficult for managers to release staff for training and as a result, attrition rates were high. The staff who did attend, engaged well and reported that they had found the training useful, however without support from peers or supervisors, subsequent transfer of learning is likely to be low (Blume et al, 2010). Although there were no direct costs involved in training, if staff were released from their normal duties, there were costs involved in covering shifts, and it was not always possible to help managers to invest

in improving staff skills. This should be considered in the future application of training in this setting.

In the two homes where managers and senior staff attended training, attrition was reduced and engagement in the sessions enhanced. Perceived organisational support theory (Eisenberger et al, 1986) states the importance of staff feeling valued by their organisation in maximising role commitment and feeling their contributions are recognised (Elliott et al, 2012). The participation of team managers is likely to have increased workers' sense of value and self-efficacy through investment in increasing their knowledge. Engagement of managers also ensured a facilitative work environment, with greater investment in ensuring both that staff could attend future sessions and in allocating time to apply knowledge from training in clinical practice.

Descriptive statistics and feedback received from staff provide preliminary evidence that the training was most well received in inpatient settings, fitting with reflections on the degree to which each setting fulfilled the three key elements identified by Baldwin and Ford (1988) for optimal transfer of learning. Inpatient staff showed the greatest mean change in approach to dementia and sense of competence. This is also consistent with findings from other inpatient settings in which biopsychosocial case formulation was found to be effective in helping staff consider broader ideas in working with clients (Ingham, Clarke & James, 2008).

### ***Staff training in care homes***

Whilst reflecting on the utility of the training across settings and the potential for learning transfer, I was interested in the differences not only between care homes and other teams in the research, but also by the variations that were evident in management, staff and the working environment between care homes.

Over the course of the project, I spent time in four care home across London, during which time I was able to interact with many of the staff, as well as observe the care home culture and the team relationships. There is a bi-directional relationship between worker and organisational variables (Elliott et al, 2012) and there were clear

associations between staff attitude, engagement with training and the nature of the interactions with care home managers. In settings where managers were proactive and keen to invest time in staff training, staff presented as more motivated and relationships between staff members appeared to be positive and supportive. This provides support for previous research highlighting the role of management support in determining the success of training interventions (Jeon et al, 2012; Visser et al, 2008). By contrast, where interactions with managers were less facilitative and the culture was more task-focused, it was more difficult to arrange training and staff were less engaged and motivated. In one care home, there were evident fractures in the cohesion of the team, with team members making critical comments about colleagues' participation during group discussions. These care homes also reported to be experiencing staffing problems, which may have both contributed to and resulted from such difficulties. It is difficult to isolate a causal mechanism for such observations, and it is likely that they are circular in nature.

Many of the staff had more experience than expected (mean of 7.8 years working in dementia) based on research about high turnover and the transient nature of care home staff teams (Testad, Mikkleson, Ballard & Aarsland, 2010). As a result there was a great wealth of knowledge about the people with dementia they were caring for from which to draw on and many staff were keen to make sense of the behaviour their clients presented with, demonstrating an empathic approach to their work. Care home staff provide a great resource in improving care for people with dementia. However, they are historically undervalued and the impact of wider organisational issues such as poor career progression and remuneration cannot be underestimated in their effect on the empowerment and motivation of staff to fulfill their roles to the full potential (Moniz-Cook, Millington & Silver, 1997).

Training staff is one of the most effective interventions in reducing staff turnover (Broughton et al, 2011) and recent literature has focused on training staff as a key intervention in improving care for people with dementia (World Alzheimer Report,

2013). Whilst benefits have been demonstrated (Coogle, Head & Parham, 2006; Elliott et al, 2012; Goyder, Orrell, Wenborn & Spector, 2012), my observations from spending time in care homes led me to reflect on the factors that allow staff teams to make best use of training, both as an intervention and a way of improving clinical practice. In situations where there are staffing difficulties, variable management support and low staff morale, teams are unlikely to be able to engage in or benefit from training. Alternatively, managers who engender person-centered care, taking a whole-system approach to improving staff performance and enhancing care quality, encourage commitment and loyalty (Jeon et al, 2012). It appears that training can only be effective in initiating change if the system is functioning well and teams have the capacity to work together towards improving practice. Working in unsettled teams and coping with large caseloads is likely to lead to a reduced sense of personal accomplishment and higher levels of occupational burnout (Jeon et al, 2012). Perceived organizational support theory (Eisenberger et al, 2006) suggests that worker productivity is negatively affected if staff do not feel valued. In such cases, training may be experienced as irrelevant and therefore it is important to consider wider team factors as well as individual inclusion criteria when recruiting, as well as the influence of systemic factors that lead to engagement in research.

### ***Evaluating a theoretical model***

As a novel theoretical model, the first challenge in the development of the empirical study was to assess how the BPS model of dementia might be evaluated most effectively. Although ultimately, the aim of the model would be to improve the wellbeing of and care for people with dementia, one of the key mediating factors in this is ensuring that staff are equipped to provide this care. It seemed most appropriate therefore to evaluate its impact on staff in the first instance, later considering its impact on people with dementia. It was therefore important to assess the suitability of existing staff outcome measures. Many studies evaluating staff training focus on factors such as job satisfaction (Coogle et al, 2006), and knowledge

of dementia (Kuske et al, 2009; Peterson, 2002). Although these were felt to be important, the primary aim of the model was to facilitate change in the degree to which staff are able to identify and assimilate biopsychosocial factors in the development of idiosyncratic interventions for people with dementia. Although there has been research on the impact of formulation on staff perceptions (Berry, Barrowclough & Wearden, 2009; Summers, 2006), few studies have assessed the degree to which staff can develop formulations (Ingham et al, 2008; Kendjelic & Eells, 2007) and there are no known studies in the field of dementia. A review of existing psychosocial outcome measures by Moniz-Cook et al. (2008) suggested a paucity of measures suitable for staff with a range of expertise that captured both biological and psychosocial knowledge. It was therefore necessary to develop a new measure in order to accurately capture change following training on the BPS model.

### ***Measure Development***

Vignettes are a tool used widely in research amongst domains such as intellectual disabilities and social care (Hughes & Huby, 2002). They provide a useful way of gathering responses about real-life scenarios whilst minimising demand characteristics and other bias encountered in the use of questionnaires. Vignettes also allow data to be analysed quantitatively so that change over time may be assessed, and they provide an effective way to capture information that closely maps onto clinical practice. Whilst vignettes were chosen for use in this context due to the ease with which data could be collected in a manner similar to that staff would come across in a clinical setting, there are a number of limitations with this method. Staff who do not have English as a first language or who have reading difficulties may have found it difficult to understand and synthesise the information, potentially compromising score validity. Time pressure created by different rates of completion amongst teams may also have created bias, causing some staff to rush and therefore not complete the information fully.

Following the decision that an idiosyncratic vignette-based measure would be most appropriate, the development project was taken on by two students at UCL (MH & LG). This ensured that measure development would be thorough and that initial assessments of its reliability and validity could be conducted. Early assessment of its psychometric properties suggest that it has good convergent validity and inter-rater reliability, indicating that it is possible to evaluate the model and gather information about the effectiveness of the BPS model as a training intervention. The presence of other validated outcome measures alongside qualitative and quantitative feedback from staff would help minimise any study limitations created by the use of a newly developed measure.

### ***Additional Outcome Measures***

The accurate measurement of idiosyncratic interventions is inherently difficult. The BPS model targets specific skills of formulation, and therefore the range of other measures that could be used meaningfully at this stage was somewhat limited. Reflection on the above factors and importance of the wider system in the degree to which learning may be transferred to clinical practice following training, underlines the importance of assessing organisational support. A review by Elliott et al (2012) highlighted the importance of measuring organisational support, ensuring organisations have the capacity to assimilate new ideas and change practice. Using such a measure prior to training would allow predictions to be made about the suitability of the team for a training intervention. Where organisational support is reported to be low, interventions may focus on improving management support and staff team relationships. Addressing each of the factors suggested by Baldwin & Ford (1988) prior to training would enable teams to make best use of the intervention.

Once the initial effectiveness of the model is established, outcome measures such as the formal caregiver attribution inventory (Fopma-Loy & Austin, 1993) or controllability beliefs scale (Dagnan, Grant & MacDonald, 2004) may also be appropriate. This would mirror qualitative reports which stated that staff found the BPS

model helpful with the development of ways to manage challenging behaviour. In addition, staff reported that the BPS model led to greater consideration of a person's background in understanding challenging behavior, and therefore a measure such as the caregiver attribution inventory in the future might also reflect this. A number of staff training studies (Clare et al, 2013; Jeon et al, 2012) have used the Maslach Burnout Inventory (MBI, Maslach & Jackson, 1981) to assess the impact of training on the level of occupational stress. In order to facilitate greater parity of outcome measurement and comparison between training intervention studies, it may be of benefit to use this measure in the future. It would however, be important to conduct the study over a longer timescale, in order to accurately capture change in this construct.

### ***Conclusions***

Staff motivation and self-efficacy are fundamental in the transfer of new principles to practice. The development of such characteristics also relies heavily on work environment factors such as management support and the team capacity for change. Consideration of these factors is therefore key in ensuring that improvements in clinical practice following training are maintained. Results suggest that such training may be particularly successful in inpatient settings, where although staff receive mandatory training, training in dementia care is often limited (Chapman & Law, 2009). The managerial support and trainee motivation observed in inpatient teams in this study provide further evidence for its effective implementation in this setting.

The BPS model may also be beneficial in care homes. However, a greater consideration of work environment factors and the relationship between management support, staff motivation and self-efficacy would be required. In both settings, it would be of benefit to run training over a longer time period, with a greater number of shorter sessions to facilitate engagement.

This appraisal has identified the variables that would support the successful implementation of the BPS model in clinical practice across different staff settings.



With further replication, larger sample sizes and additional outcome measures, the BPS training intervention could prove to be an efficient intervention in improving the skills of staff working in dementia care for the future.

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## Appendices

Appendix A  
Quality review criteria (Kmet et al, 2004)

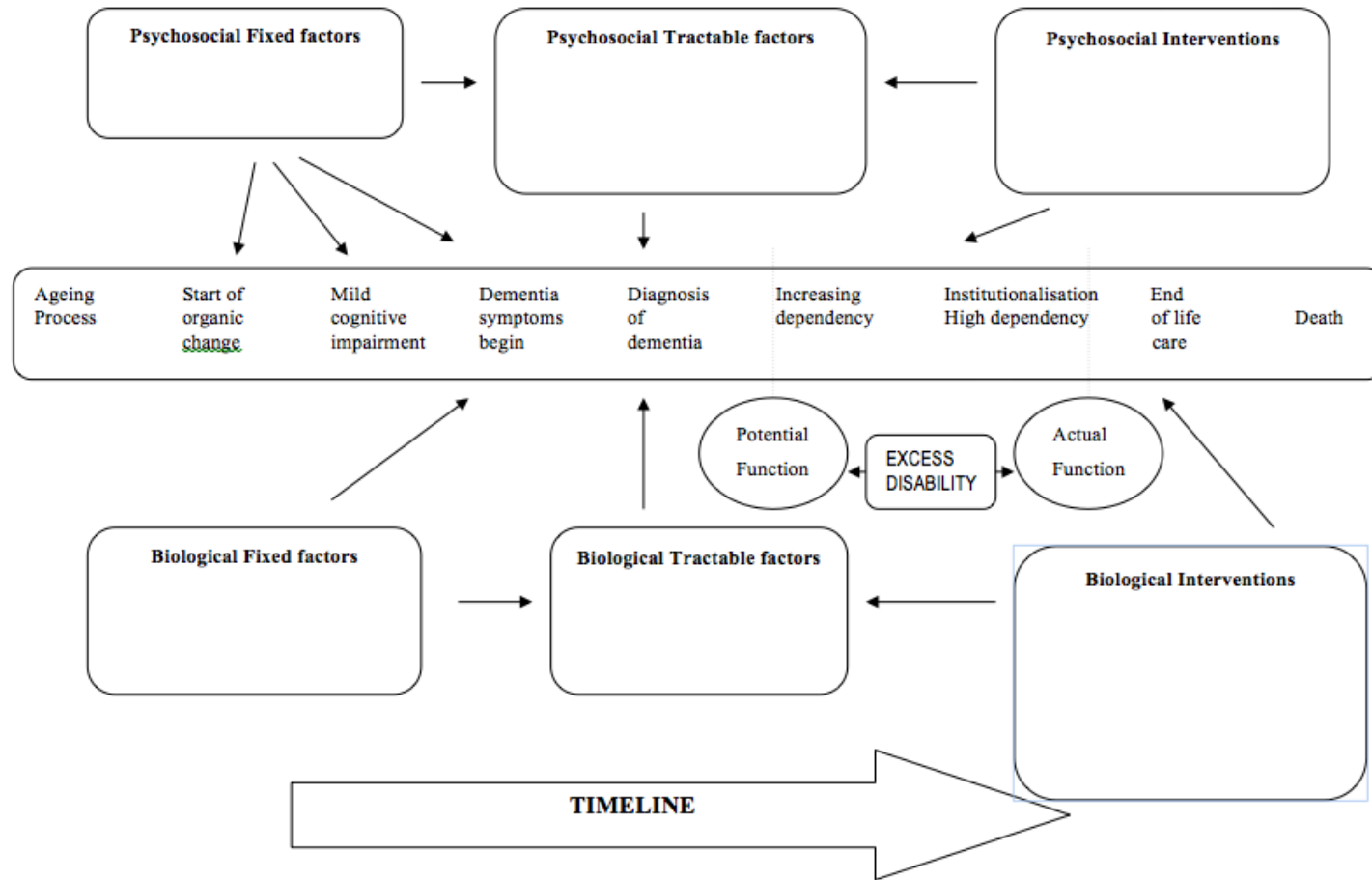
**Table 1. Checklist for assessing the quality of quantitative studies**

	<b>Criteria</b>	<b>YES (2)</b>	<b>PARTIAL (1)</b>	<b>NO (0)</b>	<b>N/A</b>
1	Question / objective sufficiently described?				
2	Study design evident and appropriate?				
3	Method of subject/comparison group selection or source of information/input variables described and appropriate?				
4	Subject (and comparison group, if applicable) characteristics sufficiently described?				
5	If interventional and random allocation was possible, was it described?				
6	If interventional and blinding of investigators was possible, was it reported?				
7	If interventional and blinding of subjects was possible, was it reported?				
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? means of assessment reported?				
9	Sample size appropriate?				
10	Analytic methods described/justified and appropriate?				
11	Some estimate of variance is reported for the main results?				
12	Controlled for confounding?				
13	Results reported in sufficient detail?				
14	Conclusions supported by the results?				

Appendix B  
The Biopsychosocial model of dementia (Spector & Orrell, 2010)



**The Biosychosocial model of dementia**



Appendix C  
Participant recruitment letter



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**Catherine Revolta**  
**Trainee Clinical Psychologist**  
Department of Clinical, Educational  
and Health Psychology  
University College London  
Gower Street  
London  
EC1E 6BT

Dear.....,

I am writing to invite you to be involved in an exciting new research programme currently being run as part of a doctoral thesis at UCL.

**What is the research?**

The research is a free staff training intervention which has been designed to evaluate a new way of working with people with dementia called: **The "Biopsychosocial (BPS) model of dementia" (Spector & Orrell, 2010)**. The Biopsychosocial model of dementia is a practical framework that helps staff consider the different factors (such as sensory impairment, mood, mental stimulation and social support) that influence how much a person is affected by their dementia. Understanding which of these factors can be changed and how, will help staff to develop a range of creative interventions for the people they work with. Developing the right interventions will give an opportunity to improve the behaviour and wellbeing of the person with dementia, and give increased optimism for staff that improvements are possible. It is hoped that this will change the way dementia is treated in the future.

**Why are we doing it?**

Dementia is a growing problem worldwide. Research into training an effective care force is vital for the management of the condition in the future. Staff training has been shown to be effective in improving a range of skills such as promoting better staff-patient relationships, individual job satisfaction, improved team working and an increase in ability to think creatively about the difficulties of people with dementia.

**What would taking part involve?**

We are looking for staff teams who work in dementia care to participate in two, three-hour long interactive training workshops (4 weeks apart) designed to enhance staff skills in using the model and developing more effective psychosocial interventions for people with dementia. During the training, staff will learn about the model and have the opportunity to practice applying the model to their clinical work. They will also be asked to answer a number of questionnaires before and after the workshops to help us see whether the training is effective.

**What are the benefits of taking part?**

First and foremost, we believe that the training will be an interesting and enjoyable experience for staff. Taking part also provides team managers with a valuable opportunity to help enhance the day-to-day skills of their staff working alongside a world-leading university, as well as being part of new developments in dementia research. By helping staff to develop better interventions for clients, we also believe that working in this way will improve quality of life for people with dementia.

**Each member of staff taking part in the training will also be given a £10 gift voucher by way of thanks for their participation.**

**How do I find out more?**

If you are interested in participating or would like more information, please do not hesitate to contact me using the details below. I look forward to hearing from you.

With kind regards,

**Catherine Revolta**  
Trainee Clinical Psychologist  
University College London

[Redacted]

Contact number: [Redacted]

Appendix D  
Participant Information Sheet

It is up to you to decide whether you would like to take part or not. Your employment will not be affected if you choose not to take part. If you decide to take part, you are still free to change your mind and withdraw your participation and any data already collected without giving a reason at any time. Please sign the consent form you have been given if you want to take part.

***“What if there is a problem” or “What happens if something goes wrong?”***

If you wish to complain, or have any concerns about any aspect of the way you have been approached or treated due to your participation in the research, National Health Service or UCL complaints mechanisms are available to you. Please ask your researcher if you would like more information on this.

In the unlikely event that you are harmed by taking part in this study, compensation may be available. If you suspect that the harm is the result of the Sponsor's (University College London) or the hospital's negligence then you may be able to claim compensation. After discussing with your researcher, please make the claim in writing to the Dr. Aimee Spector: Chief Investigator for the research (based at UCL). The Chief Investigator will pass the claim to the Sponsor's Insurers. You may have to bear the costs of the legal action initially, and you should consult a lawyer about this. Every care will be taken to ensure your safety during the course of the study. This study has been approved by the UCL REC. Project ID: 4698/001

**Contact details**

**Dr. Aimee Spector (Chief investigator)**

Research Department of Clinical, Educational & Health Psychology, University College London, London, WC1E 6HJ  
Email: [a.spector@ucl.ac.uk](mailto:a.spector@ucl.ac.uk)

**Catherine Revolta (Researcher)**

Trainee Clinical Psychologist  
Research Department of Clinical, Educational & Health Psychology, University College London, London, WC1E 6HJ  
Email: [REDACTED]



**The Biopsychosocial model of dementia: its use as a tool in clinical practice. A pilot study.  
(Student Study).**



**Participant Information Sheet**

You are being invited to take part in a research project. It is important for you to understand why the research is being done and what it would involve, before you decide if you want to take part. The researcher will go through the information sheet with you and answer any questions you have, but please take some time to read this information and talk it through with others if you wish. Please ask if there is anything that is not clear.

#### **Why are we doing this study?**

There are many factors affecting the course of dementia, some are changeable, some are not. The Biopsychosocial (BPS) model of dementia has been designed to help staff become more aware of these factors when developing interventions for the clients they work with. This research will train staff to use the model and look at whether it has an impact on the way staff think about and work with people with dementia.

#### **What does it involve?**

If you decide to take part you will need to attend one training session and one workshop four-weeks later. You will also be asked to answer some questionnaires at a time before training, after the workshop and at a follow-up point four-weeks after the workshop. This will help us to see if the model is a useful tool in clinical practice.

#### **Training session**

There is one 3.5-hour group training session. During this session you will learn about the model and how it can be applied to work with people with dementia.

#### **Workshop**

Four weeks later there is a 2-hour workshop where you will be asked to bring clinical examples and you will have the opportunity to practice applying these ideas in your day to day work.

#### **Questionnaires**

- ❖ You will be asked to answer two questionnaires: one about your approaches to working with people with dementia and one questionnaire about how competent you feel working with people with

dementia (these will take 10 minutes in total) both before training, after the workshop and again four-weeks after the workshop.

- ❖ You will also be given two case vignettes before training and four-weeks after the workshop and asked to answer a number of questions about them (this will take 10-15 minutes).
- ❖ Four-weeks after the workshop you will also be asked to answer a feedback form about the training as a whole (which will take 10-15 minutes).

#### **What are the benefits of taking part?**

We hope that you will find the training programme an interesting and enjoyable experience. By taking part in this study you will hopefully benefit from the training and have an opportunity to develop your skills. This research also plays a valuable part in improving interventions for people with dementia. In addition, as a thank you for taking part in the study you will receive a £10 gift voucher.

#### **What are the disadvantages of taking part?**

Taking part in this research will involve attending both a training session and a workshop during your working hours as well as answering some questionnaires. Although this will represent a time commitment for you, your managers will support you to fit this around your work commitments.

#### **What will happen to information about me?**

Any information you give will remain strictly confidential. Your name and place of work will not be mentioned anywhere and people reading the final report will not be able to identify you. Only a participant number will be used to identify you on any documents which leave your place of work. All data will be collected and stored in line with the Data Protection Act 1998.

#### **What will happen to the results?**

This study is also being run with two other teams. When the training has finished, the results will be written up in a report as part of a doctoral thesis. This report may also be published in a research journal and disseminated to other relevant organisations, such as those providing training in dementia care. The researcher will return to your place of work after the study is finished and present the findings to you.

Appendix E  
Ethical Approval – UCL Chair’s Action





Dr Aimee Spector  
Department of Clinical, Educational and Health  
Psychology  
UCL

14 May 2013

Dear Dr Spector

**Notification of Ethical Approval**

**Project ID: 4698/001: Does training in the bio-psychosocial model of dementia lead to a change in staff ways of thinking and formulating? A pilot study**

I am pleased to confirm that in my capacity as Chair of the UCL Research Ethics Committee I have approved your study for the duration of the project i.e. until May 2014.

Approval is subject to the following conditions:

1. You must seek Chair's approval for proposed amendments to the research for which this approval has been given. Ethical approval is specific to this project and must not be treated as applicable to research of a similar nature. Each research project is reviewed separately and if there are significant changes to the research protocol you should seek confirmation of continued ethical approval by completing the 'Amendment Approval Request Form'.

The form identified above can be accessed by logging on to the ethics website homepage: <http://www.grad.ucl.ac.uk/ethics/> and clicking on the button marked 'Key Responsibilities of the Researcher Following Approval'.

2. It is your responsibility to report to the Committee any unanticipated problems or adverse events involving risks to participants or others. Both non-serious and serious adverse events must be reported.

**Reporting Non-Serious Adverse Events**

For non-serious adverse events you will need to inform Helen Dougal, Ethics Committee Administrator ([ethics@ucl.ac.uk](mailto:ethics@ucl.ac.uk)), within ten days of an adverse incident occurring and provide a full written report that should include any amendments to the participant information sheet and study protocol. The Chair or Vice-Chair of the Ethics Committee will confirm that the incident is non-serious and report to the Committee at the next meeting. The final view of the Committee will be communicated to you.

**Reporting Serious Adverse Events**

The Ethics Committee should be notified of all serious adverse events via the Ethics Committee Administrator immediately the incident occurs. Where the adverse incident is unexpected and serious, the Chair or Vice-Chair will decide whether the study should be terminated pending the opinion of an independent expert. The adverse event will be considered at the next Committee meeting and a decision will be made on the need to change the information leaflet and/or study protocol.

On completion of the research you must submit a brief report (a maximum of two sides of A4) of your findings/concluding comments to the Committee, which includes in particular issues relating to the ethical implications of the research.

With best wishes for the research.

Yours sincerely

A black rectangular redaction box covering the signature of Professor John Foreman.

**Professor John Foreman**  
Chair of the UCL Research Ethics Committee

Cc:  
Catherine Revolta, Applicant  
Professor Peter Fonagy, Head of Department

UCL Research Ethics Committee, c/o The Graduate School, North Cloisters, Wilkins Building  
University College London Gower Street London WC1E 6BT  
Tel: +44 (0)20 7679 7844 Fax: +44 (0)20 7679 7043  
ethics@ucl.ac.uk  
www.ucl.ac.uk/gradschool

Appendix F  
NHS R&D Approval

**noclor**

Bedford House, 3rd Floor  
125-133 Camden High Street  
London, NW1 7JR

Tel: 020 3317 3045  
Fax: 020 7685 5830/5788  
www.noclor.nhs.uk

05 September 2013

Miss Catherine Revolta  
Dept of Clinical, Educational and Health Psychology  
1-19 Torrington Place  
London  
WC1E 7HB

Dear Miss Revolta,

**Employer:** Camden & Islington NHS FT  
**Accountable to:** Dr Sarah Johnson

As an existing NHS employee you do not require an additional honorary research contract with this NHS organisation. We are satisfied that the research activities that you will undertake in this NHS organisation are commensurate with the activities you undertake for your employer. Your employer is fully responsible for ensuring such checks as are necessary have been carried out. Your employer has confirmed in writing to this NHS organisation that the necessary pre-engagement checks are in place in accordance with the role you plan to carry out in this organisation. This confirms your right of access to conduct research through the trust(s) identified in the box below, and in the case of multi-project letters of access, in the box(es) in the appendix page(s), for the purpose and under the terms and conditions set out in page 2 & page 3.

<i>For R&amp;D office only: please complete the table below. If the researcher is undertaking more than one project at any one time, please complete the table(s) for the remaining projects in the Appendix page(s).</i>		Project 1 of 1
<b>Study Title:</b> The Biopsychosocial model of dementia: a staff training intervention <b>R&amp;D reference:</b> 124655 <b>REC reference:</b> N/A REC Exempt		
<b>Letter of access duration:</b>	<b>Start date:</b> 05/09/2013	<b>End date:</b> 01/07/2014
Central and North West London NHS Foundation Trust	--	
--	--	
--	--	
--	--	
--	--	
<i>If any information on this document is altered after the date of issue, this document will be deemed INVALID</i>		

Yours sincerely,



Mabel Sailli  
Senior Research Governance Officer

Appendix G  
Participant Consent Form



Appendix H  
Vignette measure– 'Problem solving exercise'



### Problem Solving Exercise Instructions

For people living with dementia there are aspects of their situation which cannot be helped. However there are also some aspects that can be changed, which can affect their quality of life and how they cope with their dementia. Below are two fictional case studies of people living with dementia, when reading these we would like you to think about what problems or issues they may be facing and how they might be addressed.

This Exercise should take you no longer than 10 minutes; we ask that you please limit yourself to spending *no more* than 10 minutes on each case study.

Please continue writing on the back of these pages if you need more space for your answers.



Case Study one: 'Mary'

Mary is 83 years old and has moderate Alzheimer's. Her husband died six years ago and she moved to a care home last year, having struggled to live independently. Mary left school at an early age, never worked and led a quiet life as a dedicated wife and mother to her two children. They both now live abroad. Mary rarely interacts with other residents, most of whom spend time in a large circle in the main lounge. There is a programme of entertainment in the home, yet Mary always refuses to join in if asked. When she first moved to the home, she joined a bingo session and burst into tears. She spends much of her time in the quiet lounge or walking in the hallway saying that she is 'trying to go home'. When in the lounge, Mary will often face the wall rather than the television. Staff have tried to engage her in photo albums or magazines, but she will only flick through them quickly. Recently, she has been found awake in the middle of the night. Staff report that she has been unusually resistant during personal care, grimacing and occasionally shouting at staff.

**Question 1) What problems or possible issues can you identify for Mary?**

Please list as many as you can think of. Keep each point brief and number them 1, 2, ...etc.

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**Question 2) What potential actions would you suggest to address each of the problems or issues you have identified?**

Please list as many as you can think of. Keep each point brief and number them 1, 2, ...etc.

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**Case study two: 'John'**

John, aged 62, suffered a stroke two years ago and was later diagnosed with Vascular Dementia. He lives at home with his wife Elaine. John was previously a mechanic who ran his own garage. He is no longer able to drive or work and has passed his business to his only son. John has always been a physically active man who enjoyed gardening, DIY and cars. John has increasingly spent more time watching TV and comfort eating. Recently, John went to a car rally with some friends, where he experienced 'angry outbursts'. He has not been out since. Elaine has tried to take the strain off John; hiring a **gardener** as he is unsteady on his feet and getting their son to help out with admin and practical jobs. Elaine reports that John often ignores the world around **him**, for example, he rarely answers the phone and frequently 'doesn't listen to her'. She feels that he does not appreciate her help and is always angry, leading to frequent arguments.

**Question 1) What problems or possible issues can you identify for John?**

Please list as many as you can think of. Keep each point brief and number them 1, 2 ...etc.

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**Question 2) What potential actions would you suggest to address each of the problems or issues you have identified?**

Please list as many as you can think of. Keep each point brief and number them 1, 2 ...etc.

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Many thanks for your co-operation. Now please return your questionnaire pack to the researcher.

Appendix I  
Staff feedback questionnaire (BPS-SFQ)

**BPS model of dementia – Staff feedback questionnaire**

Please think about your overall experience of training and answer the following questions:

1) Has the training helped improve your understanding of the different factors involved in dementia?

Not at all	A little	Somewhat	Very much so	Definitely
1	2	3	4	5

2) Will the training help you to take different factors (biological, psychological, social) into account?

Not at all	A little	Somewhat	Very much so	Definitely
1	2	3	4	5

3) Will the training help you think differently about your work?

Not at all	A little	Somewhat	Very much so	Definitely
1	2	3	4	5

4) Do you think you will make use of the training in your work?

Not at all	A little	Somewhat	Very much so	Definitely
1	2	3	4	5

5) Has the training made you feel more confident in your work?

Not at all	A little	Somewhat	Very much so	Definitely
1	2	3	4	5

6) In what ways will the training change the way you work?

7) Which aspect of the training did you find most helpful?

8) In what ways could the training be improved?

9) For which staff group do you think the training would be useful?

- CMHT
- Inpatient
- Residential care home
- All of the above

Many thanks for completing this questionnaire