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DOCTORATE IN CLINICAL AND COMMUNITY PSYCHOLOGY

MAJOR RESEARCH PROJECT

Memory, Identity and Well-Being: Preserving Selfhood in Dementia

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PROLOGUE

The purpose of this Prologue is to contextualise the present study because it underwent a departure from the original research proposal. This study was run alongside another project carried out by a second trainee clinical psychologist (Sophie Hayward). It is acknowledged that elements of the planning and consultation process have been shared, and there are a number of broad similarities in terms of the research design and methodology. Both projects were conducted as part of a larger research group at the University of Exeter investigating social identity processes called IPSIS (Identity and the Psychology of Self in Society).

This project, in its original form, exclusively concerned residents of specialist dementia care facilities. It was anticipated that the second project in this area would recruit a sample of older adults living in standard residential care facilities without cognitive impairment. Each project therefore targeted a distinct sample group. From the outset it was always an expectation that data from both projects would be analysed comparatively, although not as part of the two DClinPsy major research projects.

Both projects originally planned to allocate residents to three conditions: group reminiscence, individual reminiscence; and group skittles. However, as a result of lower than expected recruitment and higher attrition, the required number of participants indicated by the initial power calculation was not achieved. Conducting the proposed statistical analyses with fewer numbers would have resulted in reduced statistical power, thereby increasing the probability of
making a type II error. The original plan could therefore not be maintained. In response to this problem, and in consultation with the programme research director, it was decided to combine the subject pools from the two DClinPsy projects.

An examination of the range of cognitive abilities in the data indicated a further reason for taking this action. The mean total score on the Addenbrooke’s Cognitive Examination, Revised (ACE-R) for residents in dementia care was 40.56 ($SD = 17.06$). By comparison the mean total score in standard care was 58.40 ($SD = 19.76$). The ACE-R has a suggested cut-off of 88 for dementia, indicating a significant degree of cognitive impairment in both samples. Essentially a subset of the overall sample (i.e., standard care) was simply found to be less impaired. This is consistent with recent findings suggesting that a large proportion of older adults in residential care who are not in dementia-registered beds have significant cognitive impairment (e.g. Alzheimer’s Society, 2007a; Macdonald, Carpenter, Box, Roberts, & Sahu, 2002; Matthews & Dening, 2002).

Having decided to combine the datasets, a decision was needed in order to distinguish the two projects. In consultation with an external examiner it was agreed that one project would compare group reminiscence to group skittles (the present study) and the other would compare group reminiscence to individual reminiscence. Each DClinPsy project therefore benefits from a different comparison group, and takes a different emphasis to the other, although group reminiscence data is shared.
ABSTRACT

People with dementia face considerable challenges to preserving identity. It has frequently been observed that group reminiscence work helps sufferers re-establish their past identities as well as position themselves as members of a group in the present. To date, little research has attempted to put these claims directly to empirical test. Drawing on social identity theory (Tajfel & Turner, 1979) this study explores the impact of a group reminiscence intervention in a sample of 58 cognitively impaired older adults living in residential care. Measures of identity, well-being and cognition were taken before and after participants took part in six weekly sessions of either group reminiscence or a group control activity. A Pretest-Posttest Control design was employed to explore the difference in average change between treatment conditions. The main findings showed no difference in average change between the two groups on measures of identity and well-being. However, the reminiscence group showed a greater overall improvement in memory than the control group. The theoretical implications and future directions for working clinically with cognitively impaired populations are considered.

Keywords: Reminiscence, Cognition, Aging, Depression, Quality of Life, Group Membership
INTRODUCTION

Many life transitions have been shown to compromise well-being, and this is especially pronounced when the transition involves some deterioration in intellectual functioning, as with dementia (e.g. Jetten, C. Haslam, Pugliese, Tonks, & S. A. Haslam, 2008) or stroke (e.g. Clarke & Black, 2005; C. Haslam et al., 2008). Such changes are seldom anticipated and place considerable strain on the individual and those around them. An understanding of the relationship between memory decline and identity, and its implications for well-being, is an important clinical issue for cognitively impaired groups due to the likely disruption to self-continuity. The dementia sufferer’s established identity may be one of the early casualties of cognitive decline (Post, 1992), and a growing body of evidence attests to the fact that the identity of the person with dementia is challenged by an interaction of neuropathological changes and social factors. The present study investigates the impact of group-based interventions (reminiscence and social activity) in enhancing self-continuity (i.e. identity), cognition and well-being. In a departure from the focus of previous research in this area, an emphasis is placed on the function of group reminiscence to promote shared social identification by drawing connections between past and present memories.

Researchers have conceptualised ‘identity’ in different ways, perhaps owing to cultural, theoretical and ideological imperatives. The term itself has been used interchangeably with others (e.g. self, self-concept, personhood), adding to the confusion. A prominent view in the social psychological literature, that one’s personal identity is fundamentally influenced by group
memberships, is central in the current analysis. According to social identity theory there is not one personal identity but a repertoire of identities that correspond to various social group memberships (e.g. Tajfel & Turner, 1979, 1986; Turner, Oakes, S. A. Haslam, & McGarty, 1994). These social identities are derived from the groups we perceive ourselves to be members of (e.g. religious, occupational, family), and these identity networks provide the core structural organisation of self (Iyer, Jetten, & Tsivrikos, 2008). Different social identities may be more or less salient at different times, and from each of them are derived certain characteristics which are internalized into one’s global sense of self (Tajfel, 1972). ‘Self’ is therefore realised through group membership, and is inherently social.

In recent years, social identity theorists have advanced the claim that group memberships are central to the experience of stress and well-being in social, organisational and clinical settings, and may play a role in buffering against the negative consequences of major life transitions (e.g. Jetten, Tsivrikos, et al., 2008; C. Haslam et al., 2008). Negative life changes (e.g. chronic ill-health) may bring about the loss of valued group memberships (e.g. employee) or closer affiliation with less attractive groups (e.g. patient), thereby restructuring an individual’s existing identity network and possibly compromising well-being. For older adults with dementia the move to residential care may similarly be experienced as a negative life transition.

Research with non-clinical samples has highlighted the importance of group memberships for well-being. Thoits (1983) investigated the influence of multiple group memberships (e.g. spouse, employee, church member) on well-being in a large community sample. People who accessed
more social groups reported lower psychological distress on a measure of neurotic and psychosomatic symptoms. Individuals who initially possessed numerous identities (‘integrated’) were more strongly affected by identity change over time than those possessing few or no identities (‘isolated’). For ‘integrated’ individuals, identity losses were associated with negative psychological consequences whereas identity gains (i.e. adding new identities) predicted lower levels of distress. Jetten, Tsivrikos, et al. (2008) conducted a longitudinal study of identity transition in first year university students and found that the number of groups students were members of before the transition was positively related to well-being. Finally, in the BBC Prison Study, S.A. Haslam and Reicher (2006) showed that groups with a strong sense of shared social identity were buffered against the negative effects of stressors, whereas members of groups with a weak sense of shared identity were more susceptible to stress, bullying, burn out and depression. The implications of these important findings are that group memberships provide the basis of a shared sense of social identification, furnishing individuals with the psychological and material resources to manage stressors more effectively.

The potential for loss of group memberships is especially relevant to older adults who must adjust to the conditions of their stage in the lifespan. These may include the loss of professional identity in the transition to retirement, withdrawal from community and social roles, death of marital partner and peers, loss of independence, and moving into residential care (Phillips, 1957). The presence of some or all of these factors may make it increasingly difficult to reaffirm the old image of the self (Coleman, 1999; Tobin, 1991). Such changes constitute identity threats which may be detrimental to the person’s well-being. The prevalence of depression, for instance, is as
high as 20 per cent in people over 65 years of age, rising to 40 per cent in people aged 85 and over (Godfrey, Surr, Boyle, Townsend, & Brooker, 2005). Loss of role in particular has been cited as an important contributory factor for high rates of depression in the older adult population (e.g. Reker, 1997). Owing to the degree of functional and cognitive impairment seen in people with dementia, it might be expected that this group are even less able to sustain important group memberships than age-matched peers, with significant consequences for well-being. Notably, depression is as high as 50 per cent in people with dementia (Gottfries, 2001), a group for whom cognitive impairment presents as a prominent symptom.

In the first study of its kind with a neurologically impaired sample, C. Haslam et al. (2008) found that older adults who belonged to multiple groups prior to suffering a stroke reported greater life satisfaction after the stroke than those belonging to fewer groups. This relationship was mediated by the extent to which pre-existing group memberships had been maintained after the stroke, suggesting that individuals who were able to maintain their ties with existing groups were better off as a result. In the same study, the role of cognition was also considered. As with dementia, the potential for a stroke to result in cognitive impairment is well-recognised (Patel, Coshall, Rudd, & Wolfe, 2002). The findings indicated that a higher incidence of perceived cognitive failures was predictive of reduced life satisfaction. Significantly, this relationship was mediated by the individual’s ability to maintain group memberships established before their stroke. In other words, one reason cognitive impairment affected well-being was that it interfered with the individual’s ability to maintain valued social group memberships. Importantly, these findings
point towards the interdependence between memory, identity and well-being in neurological populations.

Jetten, C. Haslam, et al. (2008) explored further the nature of these relationships in a sample of people with dementia. Relative to a community comparison group, individuals in an early onset dementia group reported lower estimations of personal identity strength, belonged to fewer groups in the present, and were more likely to report that they were no longer a member of previously held groups. Life satisfaction was also significantly lower in the early onset group than the community group. This effect was shown to be partially mediated by autobiographical memory (ABM) and personal identity strength, again pointing towards the existence of a relationship between memory, identity, and well-being.

The link between memory loss and identity deserves special attention, particularly in the context of dementia. Dementia describes the symptoms that occur as a result of certain diseases and conditions affecting the brain (e.g. Alzheimer’s disease, vascular dementia). Although the cognitive profile is heterogeneous, dementia is a progressive condition. One prominent symptom is memory decline (e.g. Beatty, English, & Ross, 1997; Brandt & Rich, 1995; Dorrego et al., 1999). Philosophers and psychologists alike have pointed to the close relationship between memory and identity. Klein (2001) stressed that memory is an essential prerequisite for identity, and many others have argued that self is a product of memories of one’s personal past (e.g. Addis & Tippet, 2008; Bruner, 1994; Cantor & Kihlstrom; 1987; Fivush, 1988; Levine et al., 1998; Locke, 1731). According to continuity theory (Atchley, 1989), in times of transition
middle aged and older adults are motivated towards both inner psychological continuity and the maintenance of existing external structures (e.g. group memberships). An individual’s existing identity network is therefore likely to contribute to a sense of self-continuity during a transition (Jetten, C. Haslam, et al., 2008). However, there must also be a role for autobiographical memory (ABM) in constructing a coherent life story allowing us to perceive ourselves as the same person in the present as in the past (Cohen, 1998; Neisser, 1978). Under normal circumstances this occurs automatically, but disorders that disrupt access to memory, such as dementia, may threaten the individual’s ability to maintain such self-coherence. Internal changes (e.g. cognitive decline) and external changes (e.g. moving to residential care) may operate in tandem to threaten self-continuity. This analysis provides a clear rationale for predictions that memory loss in dementia may be associated with poor self-continuity and identity loss (see Appendix 1 for an extended discussion of identity research in dementia).

There is a small body of evidence supporting the above prediction that memory impairment in dementia is accompanied by a loss of identity. In a questionnaire study exploring the role-identity of nursing home residents suffering from dementia, a significant correlation was observed between the salience of current identity roles (e.g. professional, family, hobbies/leisure) and cognitive ability (Cohen-Mansfield, Golander, & Arnheim, 2000; Cohen-Mansfield, Parpura-Gill, & Golander, 2006). This reflected the trend of diminishing identity strength with increasing severity of dementia. A second study demonstrated that relative to age-matched controls, the quality and strength of identity in individuals with Alzheimer’s disease (AD) was weaker, more vague and more negative (Addis & Tippett, 2004). Identity loss was specifically
associated with ABM loss, such that the greater the memory loss the weaker the individual’s quality and strength of identity. In summary, neurological disorders affecting ABM, such as dementia, highlight the interdependence between memory and identity. In particular, the evidence suggests that memory decline may be associated with self-discontinuity and an impaired sense of identity.

Whilst identity threats in dementia have typically been attributed to neuropathological changes, there is a strong argument for an interactive effect with social factors. Sabat and Harré (1992) argued that social identity depends on interaction with others to be materialized, and is vulnerable to being diminished or lost as the disease progresses (Sabat, 2002; Sabat & Collins, 1999). Instead of being related merely to neuropathological deficits, this is a result of the tendency of others to focus on the person’s attributes occurring as a result of the disease process (e.g. ‘forgetful’, ‘uncooperative’), and failing to recognise and accommodate the person’s valued identities. This may be particularly detrimental for people with dementia who live in residential care. These individuals are dislocated from family and social groups via which they might otherwise express and uphold their sense of identity. Not only would it be difficult to sustain old group memberships practically, but memory decline and communication difficulties may further impede peoples’ ability to attract recognition from others to support the continuity of past identities. In addition, residents may take on unwelcome new group memberships identifying them with other elderly and disabled residents (Galvin, 2005). Discontinuity, where there is little temporal connection between internal factors (i.e. ABM) and external factors (i.e. group
memberships), may characterize the experience of the institutionalized older adult with
dementia.

The above analysis points towards the need for maintaining a coherent sense of personal history
and the need to affirm one’s identity network by increasing others’ awareness of it. The
importance of group memberships for well-being, as emphasized by the social identity approach,
indicates that the facilitation of shared group identification may be a fruitful goal for clinical
interventions with dementia sufferers. An intervention seeking to consolidate ABM, emphasizing
continuity between past and present selves, is also indicated. However this has not strictly been
put to empirical test.

Interestingly, there is a degree of convergence between accounts of the functions of group
reminiscence in older adults and the positive effects of group membership as proposed by social
identity theory (Tajfel & Turner, 1979). Reminiscence work is widely used in dementia care, and
is defined as ‘the discussion of past activities, events and experiences with another person or
group of people’ (Woods, Spector, Jones, Orrell, & Davies, 1998, p.1). In one of the earliest
studies of reminiscence in older adults, Butler (1963) suggested that reminiscing was central to
maintaining identity and self-esteem. Others have shared this belief:

Reminiscence talk can be seen as ‘renewing’ in some ways senses of identity and
belonging that people had experienced in the past. Similarly, talking about the past
with others who have lived through similar times can be seen as a means of affiliating
and forming closer relationships with those others in the present. (Buchanan & Middleton, 1995, p.458).

According to Mason, Claire and Pistrang (2005), when cognitive decline prohibits people with dementia from participating in the social networks previously accessible to them, a supportive group context plays an important role in establishing social contacts and constructing an identity based on social ties with others. It has been recognised that people with dementia may have limited opportunities to establish identity through talk, although such activity can be beneficial (Mason et al., 2005). This view is consistent with social cognitive and social constructionist traditions in psychology that suggest identity is constructed through conversations about the past (e.g. Conway, 2005; Harris, Paterson, & Kemp, 2008; Pasupathi, 2001). From this perspective, group reminiscence can provide a forum in which identity can be constructed and maintained as stories are shared between members. Talking about the past with others who have shared similar experiences could be a means of connecting and forming closer relationships in the present, leading to the development of a shared sense of identity within a group context (Buchanan & Middleton, 1994, 1995; Cheston, 1996). Others have stressed the importance of using autobiographical memory to link the past and the present when self-continuity is threatened (e.g. Bluck & Alea, 2008; Iyer et al., 2008). Such activity arguably forms the core of group reminiscence work.

Recent guidelines commissioned by the National Institute for Health and Clinical Excellence and the Social Care Institute for Excellence (National Collaborating Centre for Mental Health, 2006)
highlighted the potential value of a range of psychosocial approaches in the care of people with dementia. The document acknowledges that depression and anxiety are commonly found in people with dementia and recommends the use of psychological interventions, including cognitive behavioural therapy and reminiscence therapy, in their management. The use of group activities with people in the later stages of dementia is also indicated (e.g. cognitive stimulation, reminiscence, music, and arts and crafts).

Despite its widespread use, reminiscence in dementia has been subjected to relatively little formal evaluation and the extant literature is mixed in quality and in outcome and often lacks a theoretical base (Gillies & Johnston, 2004; Scott & Claire, 2003). A recent Cochrane review of reminiscence therapy for dementia found evidence for a significant positive impact on cognition, mood and general behavioural function, although only four studies were of sufficient methodological quality for inclusion in the review (Woods et al., 1998). A further limitation was that group and individual reminiscence interventions were considered together. The evidence specifically for group reminiscence therapy for dementia is inconclusive, and limited to a handful of studies. There are some indications for a positive impact on well-being (e.g. Brooker & Duce, 2000; Goldwasser, Auerbach, & Harkins, 1987), social interaction (e.g. Head, Portnoy, & Woods, 1990), and cognitive function (e.g. Tadaka & Kanagawa, 2007). However, studies with equivocal findings are reported just as frequently (e.g. Baines, Saxby, & Ehlert, 1987; Goldwasser et al., 1987; Ito, Meguro, Akanuma, Ishii, & Mori, 2007; Thorgrimsen, Schweitzer, & Orrell, 2002). The need for more research is clearly highlighted (Scott & Claire, 2003; Woods
et al., 1998). Despite the purported aim of reminiscence to enhance selfhood, to date there has been no attempt to empirically test the impact of a group reminiscence intervention on identity.

The Present Study

The arguments developed in the previous section attesting to the positive benefits of social identity have received some support in the social psychological literature in non-clinical settings, but are also consistent with emerging findings in research undertaken with cognitively-impaired samples. The present study aimed to link clinical and social psychological theory in exploring the potential of a group intervention to strengthen identity- and memory-continuity, and assess the implications for well-being. It was important to determine whether an intervention that specifically attempted to emphasise the continuity between past and present identities, and increase sources of validation for valued identities, conferred any advantage over being a member of a group per se. For this reason a standard group activity was used as a control.

The main hypotheses of the study were as follows. First, it was predicted that relative to a group control activity, a group reminiscence intervention would have a greater positive impact on dementia sufferers’ sense of identity. Second, because reminiscence may emphasise continuity and exercise retrieval systems, it was expected that relative to a group control activity, a group reminiscence intervention would have a greater positive impact on dementia sufferers’ memory performance and general cognition. Finally, consistent with the literature connecting identity to good psychological health, it was predicted that relative to a group control activity, group reminiscence would have a greater positive impact on dementia sufferers’ well-being.
METHOD

Participants

A total of 58 older adults in residential care participated in the study (45 women and 13 men; age = 58 to 98 years; $M = 85; SD = 7.15$). Participants were residents of one of nine participating residential care homes. Residents were not recruited if they presented with either (a) current psychiatric problems (e.g. psychosis, bipolar disorder), (b) significant language and, in particular, comprehension problems, (c) complex care needs requiring 24-hour nursing care, or (d) visual or hearing impairment severe enough to impede participation in a group context.

Between the nine homes, 29 participants were recruited from standard care and 29 participants from dementia care. In standard care the home is the person’s permanent residence and staff are on-hand 24 hours a day to provide help and assistance with personal hygiene, continence management, catering, and basic medical treatments. Dementia care facilities are specialist residential units within the main home exclusively for people with dementia. In addition to the same support provided in standard care, dementia care facilities offer a protected and secure living environment, high staff ratios, and experienced staff with specialist training. Although all the participants recruited from dementia care had a diagnosis of dementia, the exact typology of dementia (i.e. Alzheimer’s disease, vascular disease) was unknown.

At baseline it was found that there were significant differences in cognition scores between standard and dementia care residents, as might be predicted (see Table 1). However, after
allocation to treatment group, no differences in baseline measures were found between participants in the intervention condition and comparison condition (see Appendix 2). The range of Mini Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) scores in the combined sample was between four and 28.

Table 1. Participant demographics by treatment condition and level of care

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intervention</th>
<th>Care Level</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treatment</td>
<td>Control</td>
<td>Standard</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>84.85</td>
<td>85.79</td>
<td>86.38</td>
</tr>
<tr>
<td>(SD)</td>
<td>(7.89)</td>
<td>(6.07)</td>
<td>(7.72)</td>
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<td>Minimum</td>
<td>58</td>
<td>74</td>
<td>58</td>
</tr>
<tr>
<td>Maximum</td>
<td>98</td>
<td>95</td>
<td>98</td>
</tr>
<tr>
<td>Gender (%)</td>
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<tr>
<td>Female</td>
<td>76.47</td>
<td>79.17</td>
<td>86.21</td>
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<tr>
<td>Male</td>
<td>23.53</td>
<td>20.83</td>
<td>13.79</td>
</tr>
<tr>
<td>MMSE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>16.15</td>
<td>16.33</td>
<td>18.61</td>
</tr>
<tr>
<td>(SD)</td>
<td>(6.63)</td>
<td>(5.63)</td>
<td>(5.54)</td>
</tr>
<tr>
<td>Normal range (%)</td>
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<td>3.57</td>
</tr>
<tr>
<td>Mild range (%)</td>
<td>24.24</td>
<td>29.17</td>
<td>46.43</td>
</tr>
<tr>
<td>Moderate range (%)</td>
<td>48.48</td>
<td>58.33</td>
<td>42.86</td>
</tr>
<tr>
<td>Severe range (%)</td>
<td>18.18</td>
<td>12.50</td>
<td>7.14</td>
</tr>
</tbody>
</table>

In Figure 1 the passage of participants through the study is presented in the style of a CONSORT\(^1\) (Consolidated Standards of Reporting Trials) flow chart. Participants were required to attend at least three out of six intervention sessions in order to be included in the final

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\(^1\) CONSORT aims to improve the transparency of reporting of randomized controlled trials (see http://www.consort-statement.org)
analysis. Retention of participants allocated to the treatment condition was 83%. Retention of participants allocated to the comparison condition was 60%.

Figure 1. CONSORT-type flow chart illustrating study participation
Design

The study employed a Pretest-Posttest-Control (PPC) design (Dimitrov & Rumrill, 2003). Participants were assigned either to the experimental or comparison group and each participant was assessed both before and after the treatment occurred. This allowed for the measurement of individual change, and the analysis was conducted using difference scores, calculated by subtracting each participant’s pretest score from his or her posttest score. In examining individual change, and measuring the posttest score relative to each participant’s pretest score, the PPC design controls for baseline differences between participants. This was an important consideration because of the heterogeneity of the sample in terms of pretest cognitive ability. Treatment was a between-subjects factor, such that change in the reminiscence group was compared to change in the comparison group (see Appendix 2).

Sample Size

An a priori power calculation was made using G*Power Version 3.0.8 (Faul, Erdfelder, Lang, & Buchner, 2007). Based on 0.8 power to detect a significant difference ($p \leq 0.05$), and previous research showing a large effect size, a total sample size of 58 participants was required for the study (see Appendix 2).

Procedure

The initial recruitment phase involved five residential care homes all managed by Somerset Care Ltd., a large not-for-profit care company in the South West of England. However, uptake was below what had originally been anticipated and an additional four residential homes were
approached to increase participant numbers. One additional home was from Somerset Care Ltd., and three further homes were managed by Cornwall Care, another not-for-profit care company in a nearby county. Of the participating sites, the smallest home had 34 registered beds and the largest had 83 (see Appendix 2).

Residents, relatives, and care home staff were invited to attend informal coffee mornings in order to meet the researchers and discuss the study. Residents who attended were each given an information sheet, and a separate information sheet was provided for staff members and relatives. Residents were offered the opportunity to ask questions before being invited to read and sign the consent form. Special consideration was taken with the recruitment of residents with probable cognitive impairment, and separate coffee mornings were staged in the dementia care units. We acted on guidance from the staff in each home on an individual basis, and when indicated, consent was sought from an individual’s next of kin. An advocate from Age Concern was present during recruitment in the dementia care units to offer independent guidance. All procedures were approved by the School of Psychology Ethics Committee (see Appendix 2).

There were three main phases to the study: pre-intervention; intervention; and post-intervention. Each phase is described in turn below:

Pre-intervention. Participants were interviewed during a four-week baseline period immediately preceding the intervention. Interviews were conducted in the resident’s home and took approximately one hour to complete. Interviewers included two trainee clinical
psychologists, a post-doctorate research fellow, and a research assistant. Measures were selected to highlight specific constructs relevant to the hypotheses. The following summarizes the main characteristics of each measure:

1. *Exeter Identity Transition Scales* (EXITS; Jetten, C. Haslam, et al., 2008). Participants completed an identity questionnaire that included items from the EXITS, a scale developed for the purpose of examining changes in identity and group affiliations over time. Items were read aloud by the interviewer and participants were asked to rate their agreement using a five-point scale ranging from 1 (“do not agree at all”) to 5 (“agree completely”). A visual response scale was presented in order to facilitate comprehension and responding. The EXITS was recently adapted and tested with an older adult sample (Jetten, C. Haslam, et al., 2008), and the following subscales were derived from this analysis:

   a. *Multiple Group Memberships*. Three items (α = 0.85, α = 0.88\(^2\)) assessed participants’ present membership in multiple groups. These items were: “I am a member of lots of different groups,” “I am active in lots of different groups,” and “I have friends who are in lots of different groups”.

   b. *Maintenance of Group Memberships*. Three items (α = 0.87, α = 0.87) assessed the extent to which participants had maintained old group memberships. These items included: “Since moving to residential care, I still belong to the same groups”, “Since moving to residential care, I am still active in the same groups”, and “Since moving to residential care, I still have friends in the same groups”.

\(^{2}\) A reliability analysis was computed using pretest data and posttest data for each subscale. Cronbach’s alpha is reported for both assessment points (i.e. ‘pretest, posttest’).
c. **New Group Memberships.** Three items \((\alpha = 0.89, \alpha = 0.82)\) assessed residents’ experience of belonging to new groups during their time in residential care. These items included: “Since moving to residential care, I have joined one or more new groups”, “Since moving to residential care, I am active in one or more new groups”, and “Since moving to residential care, I have become friends with people in one or more new groups”.

d. **Continuity.** Three items \((\alpha = 0.68, \alpha = 0.74)\) assessed participants’ perception of self-continuity; the belief they had remained the same person throughout life. These items were “I am the same person as I always was”, “Over time lots of things have changed, but I am still the same person” and “I am a different person now than I was in the past”.

e. **Personal Identity.** Five items \((\alpha = 0.78, \alpha = 0.70)\) assessed residents’ perceptions of personal identity strength. These items were: “I know what I like and what I don’t like”, “I know what my morals are”, “I have strong beliefs”, “I know what I want from life”, and “I am aware of the roles and responsibilities I have in my life”.

2. **Addenbrooke’s Cognitive Examination, Revised (ACE-R):** General cognitive ability was measured using the revised form of the ACE (Mioshi, Dawson, Mitchell, Arnold, & Hodges, 2006). The ACE-R is a cognitive screening instrument that takes between 12 and 20 minutes to administer and score in clinical settings. It gives a maximum score of 100 and there are five sub-domains relating to different components of cognition: attention and orientation (18 points); memory (26 points); fluency (14 points); language (16 points); and visuospatial (16 points). The memory sub-domain was of particular relevance to the hypotheses. The ACE-R incorporates the MMSE, another widely used and validated screening tool in mental status evaluation.
3. Immediate Memory: A single trial of the Story Memory subtest from the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS; Randolph, 1998) was used to assess immediate recall. A short story is presented orally, and the examinee is required to retell the story from memory. Points are awarded for verbatim recall of 12 story items. Given concerns about the difficulty of the standard recall measure, a recognition test was also administered. This two-alternative forced-choice task was presented immediately after the recall test. It was developed using eight story items from the RBANS Story Memory subtest.

4. The Hospital Anxiety and Depression Scale (HADS): The HADS (Zigmond & Snaith, 1983) is a 14-item assessment scale distinguishing depression and anxiety. Unlike a number of other mood scales that have a high proportion of somatic items, such as the Geriatric Depression Scale (GDS; Sheikh & Yesavage, 1986), items of the HADS are not confounded by the presence of physical health problems that might be typical of an older adult sample. The HADS has frequently been validated for use with adults over the age of 65 (Kenn, Wood, Kucyj, Wattis, & Cunane, 1987; Snaith, 2003) and in a recent review it was recommended as an outcome measure in routine clinical practice with older adults (Sperlinger, Clare, Bradbury, & Culverwell, 2004). To facilitate administration, the questionnaire items were read aloud in an interview format and visual response scales using large print were used to assist participants in providing their responses.

5. Quality of Life Alzheimer’s Disease Scale (QOL-AD): The QOL-AD (Logsdon, Gibbons, McCurry, & Teri, 1999) is a brief, 13-item measure designed for use in direct interview
with the client. It uses simple language, is quick to complete, and covers life domains thought to be important in older adults with cognitive impairment (e.g. living situation, memory, money). Respondents rate each item on a four-point scale (‘poor’=1, ‘fair’=2, ‘good’=3, ‘excellent’=4). The response scale was also presented visually to facilitate responding. The validity and reliability of the measure in a UK sample is extensively reported (e.g. Hoe, Katona, Roch, & Livingston, 2005; Thorgrimsen et al., 2003).

**Intervention.** The aim of the group reminiscence intervention was to stimulate memory by enhancing connections between the past and present, and foster shared social identities. There were six weekly sessions each lasting 30 minutes. Topics were deliberately presented in biographical order to facilitate temporal continuity between the past and present (see Appendix 2). To this end the themes covered in weeks one to six were (a) childhood, (b) school days, (c) domestic life/world of work, (d) weddings, (e) family life, and (f) days out/holidays. It was expected that the selected topics would have some relevance to all participants and encourage the sharing of memories in the group.

The groups were held in a day room in each care home with participants seated in a circle. A range of objects were borrowed from the Dorset Memory Box\(^3\), a lending library service providing stimulus material for reminiscence work with older adults. Participants were encouraged to handle and inspect the objects in order to facilitate discussion. There were eight reminiscence groups altogether, four from standard care and four from dementia care.

\(^3\) Dorset Memory Box Library, Weymouth Community Hospital, Melcombe Avenue, Weymouth, Dorset, DT4 7BT
The comparison group participants engaged in a weekly 30 minute skittles session for six weeks. Skittles is a popular game in areas of England and Wales in which the player throws a ball towards nine wooden pins positioned at the far end of a skittle alley, attempting to knock them down. The focus in these sessions was on the present, and in particular, the performance of people taking part in the activity. This was successful in preventing participants from engaging in reminiscence activity. There were seven skittles groups altogether, four from dementia care and three from standard care.

Each group (reminiscence and skittles) was led by one main facilitator who was a member of the project team and a co-facilitator who was the activity coordinator in the home. Activity coordinators were familiar with residents and were therefore suitably positioned to attend to their needs during the session, particularly if residents became distressed. The facilitators were two trainee clinical psychologists and a postgraduate research fellow from the University of Exeter.

Due to geographical distances and mobility issues, the members of any given group all lived in the same home. Residents from different care levels were not mixed because they lived in separate parts of the home and were unfamiliar to one another. Five residents were originally allocated to each group. Operating within these restraints, residents were allocated randomly to groups.

*Post-Intervention.* Within four weeks of the intervention finishing, pre-intervention interviews were re-administered to all participants.
RESULTS

Preliminary Checks

Initial analyses looked at potential differences in demographic variables. Firstly, there was no average difference between treatment groups in terms of age, \( U = 383, p = .69 \). Secondly, the gender distribution in the two treatment conditions did not differ significantly, \( \chi^2(1) = .059, p = .53 \). Missing values in the dataset were not replaced and cases were excluded pairwise from the analysis. Overall, 7.09% of the difference score data was missing. The dataset was screened for outliers but none were found (see Appendix 3).

Table 2 compares the average raw scores of depression and anxiety ratings at pretest and posttest for both treatment groups combined. These were examined to check that the intervention had not contributed to increased levels of pathology in the sample. Reassuringly, the mean scores for depression and anxiety fall within the normal range of the HADS (i.e. 0-7) at both time points.

Table 2. HADS raw mean scores (and SD) at pretest and posttest for the combined sample

<table>
<thead>
<tr>
<th>Measure</th>
<th>Time</th>
<th>Mean</th>
<th>SD</th>
<th>95% Confidence Interval</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td>Lower Bound</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HADS Depression</td>
<td>Pretest</td>
<td>4.88</td>
<td>3.74</td>
<td>3.87</td>
</tr>
<tr>
<td>HADS Depression</td>
<td>Posttest</td>
<td>4.56</td>
<td>3.24</td>
<td>3.70</td>
</tr>
<tr>
<td>HADS Anxiety</td>
<td>Pretest</td>
<td>6.02</td>
<td>4.75</td>
<td>4.74</td>
</tr>
<tr>
<td>HADS Anxiety</td>
<td>Posttest</td>
<td>5.56</td>
<td>4.35</td>
<td>4.41</td>
</tr>
</tbody>
</table>
Because the study used a small group design whereby participants were nested within groups and groups were nested within treatments, it was important to assess whether individual member responses were truly independent. The problem of interdependence has recently been highlighted by social psychologists who routinely conduct analyses of small group data (e.g. Kenny, Mannetti, Pierro, Livi, & Kashy, 2002; McGarty & Smithson, 2005). Preliminary tests were conducted examining the interaction between group and treatment condition using hierarchically nested ANOVA (see Appendix 3). The significance value for three dependent variables (Multiple Group Memberships, New Group Memberships, and Continuity) was not above the minimum recommended level of $p > .25$ (Anderson & Ager, 1978; Bozivich, Bancroft, & Hartley, 1956; Paull, 1950). This signified the presence of a nested effect, demonstrating statistical interdependence of groups. These variables were therefore excluded from further analysis. For the remaining variables results are reported for the main effect of treatment condition using individual member responses as the main unit of analysis.

In addition, the data was examined to check the assumptions of parametric tests. Shapiro-Wilk tests were conducted to check the assumption that the data was from a normally distributed population. The assumption of homogeneity of variance was examined using Levene’s test. Where these assumptions were violated, and data transformations were not successful\(^4\), equivalent non-parametric tests have been used (see Appendix 3).

*Main Findings*

\(^4\) Square root, Logarithm, and Reciprocal transformations were attempted where parametric assumptions were not met.
Hypothesis 1: Impact of interventions on social and personal identity. Identity was measured using two subscales of the EXITS questionnaire. Correcting for multiple comparisons, an adjusted alpha level of .025 was applied. A Mann-Whitney U test was used to analyze Maintenance of Group Memberships. The median difference score for both treatment conditions on this measure was zero. Against expectation, no difference between treatment conditions was observed for Maintenance of Group Memberships, $U = 211, p = .025, r = .27$, one-tailed. The Personal Identity scale was analyzed using an independent samples t test. No difference between treatment conditions was observed for this variable, $t(51) = .38, p = .35, r = .05$, one-tailed. An inspection of the 95% confidence intervals around each mean, shown in Table 3, suggests there was little change between pretest and posttest for either treatment condition.

Table 3. Mean difference scores, standard deviations, and confidence intervals of DV’s

<table>
<thead>
<tr>
<th>Measure (Difference Score)</th>
<th>Condition</th>
<th>Mean</th>
<th>SD</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Bound</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upper Bound</td>
</tr>
<tr>
<td>Maintenance of Group Memberships</td>
<td>Reminiscence</td>
<td>-0.57</td>
<td>1.34</td>
<td>-1.06</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>0.08</td>
<td>0.95</td>
<td>-0.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.53</td>
</tr>
<tr>
<td>Personal Identity</td>
<td>Reminiscence</td>
<td>0.10</td>
<td>0.83</td>
<td>-0.19</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>0.02</td>
<td>0.83</td>
<td>-0.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.40</td>
</tr>
<tr>
<td>ACE-R Memory</td>
<td>Reminiscence</td>
<td>2.71</td>
<td>3.57</td>
<td>1.46</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>0.29</td>
<td>3.83</td>
<td>-1.32</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.91</td>
</tr>
<tr>
<td>ACE-R Total</td>
<td>Reminiscence</td>
<td>4.68</td>
<td>8.99</td>
<td>7.97</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>0.83</td>
<td>8.72</td>
<td>4.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.82</td>
</tr>
<tr>
<td>HADS Depression</td>
<td>Reminiscence</td>
<td>0.33</td>
<td>3.74</td>
<td>-0.99</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>-1.36</td>
<td>3.92</td>
<td>-3.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.38</td>
</tr>
<tr>
<td>HADS Anxiety</td>
<td>Reminiscence</td>
<td>0.24</td>
<td>5.03</td>
<td>-1.54</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>-1.05</td>
<td>3.02</td>
<td>-2.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.29</td>
</tr>
<tr>
<td>QOL-AD</td>
<td>Reminiscence</td>
<td>-0.52</td>
<td>3.87</td>
<td>-1.89</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>0.18</td>
<td>4.52</td>
<td>-1.82</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.19</td>
</tr>
</tbody>
</table>

NB Difference scores for dependent variables are not converted to a common scale.
Hypothesis 2: Impact of interventions on memory and general cognition. ACE-R

Memory score and ACE-R Total score were analyzed using independent samples $t$ tests with treatment condition (reminiscence vs. skittles) as the independent variable. An adjusted alpha level of .025 was adopted.

For ACE-R Memory, group reminiscence showed a significant improvement relative to group skittles, $t(56) = 2.46, p = .0085, r = .31$, one-tailed. Inspection of the 95% confidence intervals confirmed that there was an increase in ACE-R memory score for participants in group reminiscence, but no change for participants in group skittles. The impact of the intervention on global cognition was assessed by ACE-R total score. However, there was no significant difference between treatment conditions on this outcome measure, $t(52) = 1.58, p = .06, r = .21$, one-tailed.

It was observed that the distribution of scores on the RBANS Story Recall subtest was highly uneven with a large proportion of data points at floor level. Descriptive data showed that for reminiscence and skittles combined, 69% of participants failed to recall a single item at pretest ($M = 1.10, SD = 1.94$) and 45.61% failed to recall a single item at posttest ($M = 1.75, SD = 2.39$). This suggests that the measure was too difficult for participants to complete, and it was therefore excluded from the analysis.

The recognition data was similarly problematic. No difference was found between pretest recognition scores ($M = 4.47, SD = 2.39$) and chance expectation, $t(54) = 1.46, p = .149$, two-
tailed. There was also no difference between posttest recognition scores \((M = 4.56, SD = 2.67)\) and chance expectation, \(t(54) = 1.57, p = .123\), two-tailed. This strongly suggested that the measure lacked adequate sensitivity, and no further analyses were performed using the data (see Appendix 3).

**Hypothesis 3: Well-Being.** The difference scores for the measures of well-being were analyzed using \(t\)-tests with treatment condition (reminiscence vs. skittles) as the independent variable. Correcting for multiple comparisons, an adjusted alpha level of .0167 was applied. The difference in HADS Depression scores from pretest to posttest was no different for participants in group reminiscence than for those in group skittles, \(t(53) = 1.62, p = .056, r = .22\), one-tailed. The change in Anxiety scores from pretest to posttest was no different for group reminiscence than it was for group skittles, \(t(53) = 1.08, p = .143, r = .15\), one-tailed. Finally, the change in QOL-AD scores was no different for participants in group reminiscence than for those in group skittles, \(t(53) = -.61, p = .27, r = .08\), one-tailed.

**DISCUSSION**

This study aimed to explore whether a group reminiscence intervention could enhance identity, memory, and well-being in a sample of older adults with dementia. It was argued that there exists a striking convergence between the proposed functions of reminiscence work in older adults and theoretical accounts of the importance of group memberships and identity for well-being.
Furthermore, the memory component of reminiscence work was linked to the importance of self-continuity for good psychological health in older age (Atchley, 1989; Parker, 1995). These relationships had yet to be put to empirical test. They pointed towards a novel set of predictions for a group-based reminiscence intervention, investigated herein. The main findings were that participants receiving group reminiscence showed a significantly greater improvement in memory performance than those receiving a social activity (i.e., skittles). However, contrary to expectations there was no difference between treatment groups in terms of identity and well-being.

The first question addressed whether group reminiscence had a greater positive impact on identity than a group comparison activity. The average change in identity scores was not significantly different between the two interventions. However, as participation in either intervention bestows group membership, social identity theory might predict a general trend towards improvement, hence the finding of no difference. However, this was not indicated by the results. Rather, they suggest that both interventions made little or no difference to residents’ identity ratings.

The failure to find any significant effects for the two identity scales may be explained by the severity of cognitive impairment observed in the sample. If memory is a prerequisite for identity (Klein, 2001), and severe memory impairment is associated with a weaker sense of identity (e.g. Addis & Tippet, 2004), then it might be predicted that memory loss acts as a barrier to developing new identities. Three to six group sessions may be insufficient for residents with this
level of impairment to begin to identify themselves as a member of the group. More time may be needed before residents are able to consistently recognise themselves as group members and benefit fully from engaging in reminiscence activity. The inclusion of an identity measure was a novel departure, and as such, it is not straightforward to make comparisons with other studies evaluating group reminiscence in dementia. Nonetheless, the present study sought to address a criticism of previous evaluation studies that are said to lack a coherent theoretical base (Gillies & Johnston, 2004).

A second prediction was that relative to a group control activity, group reminiscence would have a greater positive impact on memory. The results support this hypothesis, suggesting that reminiscence activity per se is beneficial for memory performance. The key difference between treatment interventions was in the focus of the reminiscence activity on connecting the past with the present. The skittles activity, on the other hand, focused only on the present. This finding is important in the context of continuity theory (Atchley, 1989), because the reminiscence intervention deliberately attempted to promote a sense of temporal continuity across the lifespan. Reminiscence activity requires one to draw upon memory, activating participants’ use of retrieval mechanisms in order to share details from their past with others. In residents’ qualitative feedback about their experience as participants, a number of comments highlighted the impact of the intervention on memory. One resident stated that “[It] brought your memory back to you”. Another said “they recuperated our memory a bit”, and “it jogs your memory”. The results do not indicate that the intervention can reverse the dementia or arrest its progression. Rather, they
suggest that reminiscence engages residents cognitively leading to short-term gains in memory performance that may partially offset the neurodegenerative consequences of the disease. The improvement in memory performance was not reflected to the same degree in the assessment of overall cognition (i.e., ACE-R Total score). This suggests that the finding of superior memory performance in the reminiscence condition cannot be explained as an artefact of a trend towards improved global cognitive function. A handful of previous studies investigating the impact of reminiscence in dementia report a significant improvement in general cognition (e.g. Woods et al., 1998; Tadaka & Kanagawa, 2007). However, a breakdown of the different cognitive components was not reported, making it difficult to draw comparisons with the findings of the present study.

The third question of interest concerned well-being. Specifically, it was hypothesized that relative to a group control activity, group reminiscence would have a greater positive impact on well-being. On measures of depression, anxiety and quality of life, this hypothesis was unsupported by the data. This finding is consistent with several other studies of group reminiscence showing little change in well-being (e.g. Thorgrimsen et al., 2002; Baines et al., 1987). It is important to note that depression and anxiety scores fell within the non-clinical range at pretest. It might have been unrealistic therefore to expect a dramatic improvement because there was not a great amount of latitude for change in the first instance. It is noteworthy that average HADS scores remained in the non-clinical range at posttest, indicating that the interventions caused no harm to residents.
Against expectations, improvement in memory functioning was not seen in association with changes in well-being or identity. This finding is inconsistent with the pattern from existing research that showed a relationship between these variables in neurological samples. C. Haslam et al. (2008), for instance, found that stroke sufferers’ experience of cognitive failures was predictive of life satisfaction, supporting the view that there is an important relationship between memory and well-being. The current findings, however, do not provide evidence for this assertion but suggest that group reminiscence contributes to improved memory performance without promoting well-being and in the absence of any corresponding change in identity.

Limitations

The conclusions of the present study must be considered in light of several important limitations. Firstly, the intervention was relatively brief, lasting between three to six sessions. This may have been too short-lived to have a sufficient impact on identity, and in particular, to facilitate a shared sense of identification between group members. Individuals may need to belong to a group for a minimum period of time before they begin to internalize their membership of the group as part of their identity structure. This may be especially true of residents with more profound memory impairment, as was the case here. The interdependence between memory and identity (Klein, 2001) implies that more time may be required to successfully enhance identity strength in persons with very severe memory impairment.

One further limitation was the fact that there was no analysis of the Continuity scale of identity. It has therefore not been possible to determine whether the improvement in memory performance
was associated with a stronger sense of self-continuity, as might be predicted (Atchley, 1989). The exclusion of the Multiple Group Memberships scale may also have been a limitation, given the importance of group memberships for well-being in the social psychology literature (e.g. Thoits, 1983) and in cognitively impaired samples (e.g. C. Haslam et al., 2008). Nonetheless, it remained important to observe the recommended procedures for addressing the problem of interdependence.

*Clinical Implications*

Relative to participation in group activity *per se*, group reminiscence has the potential to stimulate memory in older adults living in care even when they display considerable cognitive impairment. Arguably, this has far-reaching clinical implications. The findings suggest that it is the nature of the activity, reminiscence, which is the critical factor in improving memory. Reminiscence groups stressed the importance of continuity across the lifespan, connecting the past and present. Session topics had a temporal structure that followed a biographical timeline. These features may distinguish the reminiscence intervention in the current study from previous research, perhaps helping to explain the beneficial effect on memory (cf. Goldwasser et al., 1987). Maintaining cognitive function in people with dementia may have other important positive benefits that were not assessed here, including improved functional ability and completion of activities of daily living. The longer-term impact of such outcomes may predict future quality of life, and they are likely to be particularly important in care facilities where there is a high level of staff dependency.
Importantly, dementia sufferers retain a sense of identity, despite the challenges they face in terms of cognitive impairment and the social upheaval of moving to residential care. Previous research has indicated that with the progression of the disease process, identity strength is weakened (e.g. Cohen-Mansfield et al., 2006). This observation points to the need for interventions and a philosophy of care that safeguards residents’ identity. Interestingly there was considerable positive feedback from staff involved in the study. Co-facilitators in group reminiscence sessions reported that they had learned things about residents that they were previously unaware of. Their participation had clearly provoked their curiosity about the residents’ histories. If staff involvement in such activity can allow them to see residents in a new light, and provide recognition for their pre-morbid identity, this may ultimately help to improve continuity between pre- and post-morbid identity in dementia.

The degree of cognitive impairment in the residents taking part is also worthy of mention. It was found that 50% of residents living in standard care had MMSE scores in the moderate to severe range of impairment. This picture is consistent with other research findings. In a recent report prepared by the Alzheimer’s Society (2007a), it was shown that two-thirds of care home residents in the UK have dementia and 40% of these individuals are not in dementia-registered beds. Other estimates of the prevalence of dementia in long-term care facilities range from 62% to 74% (Matthews & Dening, 2002; Macdonald, Carpenter, Box, Roberts, & Sahu, 2002). However, as a cautionary note it must be stated that the ACE-R and MMSE are only screening instruments. Therefore, it was not possible to make firm conclusions about the diagnosis of standard care residents. Nonetheless, only one third of people with dementia will receive a
diagnosis (National Audit Office, 2007; Macdonald & Carpenter, 2003). Consequently, it may not be surprising to find that many residents of care homes have dementia but attract no formal diagnosis. According to the Alzheimer’s Society (2007b) the level of under-recognition of dementia is a significant barrier to providing adequate care. The implication is that an understanding of residents’ cognitive abilities may inform the provision of care and help meet their needs. The possibility that dementia is under-recognised only highlights the potential for psychosocial interventions which stimulate memory and cognitive functioning in residents, such as group reminiscence.

Future Directions

Despite its limitations, the present study provides a novel direction for future research, drawing together social identity theory (Tajfel & Turner, 1979) and neuropsychology to better understand the relationships between cognition, identity and well-being. But clearly, more work is needed. First, the role of social identity and group memberships in protecting health and well-being is relatively poorly understood in clinical populations. Although unsupported here, predictions based on the tenets of social identity theory suggest that group memberships are important for well-being, particularly during times of significant life transition and stress (e.g., as would be anticipated in moving to residential care). It may be interesting to explore whether this features more strongly around the time of diagnosis, when the individual with dementia still lives in the community and has stronger ties with existing groups.
There is also a need for greater understanding of the relationship specifically between memory loss and identity in dementia. A specific measure of ABM, such as the Autobiographical Memory Interview (AMI; Kopelman, Wilson, & Baddeley, 1990) might be considered as part of the assessment procedure in future evaluation studies. This would allow for some assessment of the importance of memory pertaining specifically to the self, and its relationship with identity. Future research might further elucidate the nature of the relationship between identity and well-being in dementia. This would help to equip clinicians and carers to intervene in order to preserve residents’ self-continuity when it is threatened.

Future evaluation studies of group reminiscence work could supplement self-report information with observational data completed during the intervention itself, such as Dementia Care Mapping (DCM) techniques (e.g. Bradford Dementia Group, 2005; Brooker & Surr, 2005, 2006). A longer intervention phase also may be desirable, resources permitting. This might allow group members a better chance of developing a shared identity and the sense that they are a member of the group. Finally, the use of a longitudinal design including follow-up assessments would help determine whether the gains in memory performance are maintained over time. This may be particularly important to bear in mind in a long-term care facility, although it must be balanced against the expectation that dementia ultimately leads to decline.

Importantly, these potential hypotheses may not be limited to the study of dementia and aging, but could include other clinical populations where self-continuity is threatened by illness or neurological impairment.
Conclusions

In this study, the impact of a group reminiscence intervention on cognition, identity and well-being outcomes was investigated. It was shown that relative to a group control activity, group reminiscence contributed to a significant short-term improvement in memory performance in older adults with dementia. However, contrary to predictions, there was found to be no corresponding benefit in terms of identity strength or well-being. The data provides evidence for the use of group reminiscence work in residential care facilities, consistent with some previous research. The intervention itself was unique in that it emphasized continuity between past and present identities, with topics presented in order of lifespan experience. Unlike existing research on group reminiscence, the present study made predictions based on strong theoretical grounds. This original synthesis integrated social identity theory (Tajfel & Turner, 1979), continuity theory (Atchley, 1989) and functional accounts of group reminiscence work (e.g. Buchanan & Middleton, 1995). This led to a novel set of predictions that were partially supported by the data. Nevertheless, this study represents a foundation for research that seeks to investigate effective interventions for improving the lives of older adults with dementia, with a particular emphasis on identity.
REFERENCES


Appendix 1

(Extended Introduction Appendix)

The following section provides a brief review of the study of identity in dementia, expanding on some of the findings discussed in the manuscript. This small body of research, largely using qualitative methodologies, explores the challenges to identity preservation in people with dementia, and highlights possible areas for intervention. This section has been divided into two main sections to address the following points:

1. The study of identity in dementia: Research findings (p. 54)
2. Indications for the utility of ‘identity’ as a focus for intervention in dementia (p. 58)
3. References (p. 60)
1. The Study of Identity in Dementia

The cognitive deficits associated with dementia have often been held commensurate with the decline of self, and research has found some evidence for identity loss in dementia. Cohen-Mansfield, Parpura-Gill and Golander (2006a) used a questionnaire method to examine perceptions of past and present role-identities in 104 dementia sufferers, their carers, and relatives. Consistent with preliminary findings (Cohen-Mansfield, Golander & Arnheim, 2000), the family role was the most important for most participants. The importance of all role domains was shown to decrease over time with the professional role showing the steepest decline. Dementia sufferers with severe cognitive impairment, as measured by the mini-mental state examination (MMSE; Folstein, Folstein, & McHugh, 1975), were significantly less able to provide information about their identity than those with mild to moderate impairment, as indicated by the number of missing responses.

However, recent research has attested more to the preservation of identity in dementia sufferers, suggesting that a sense of self can survive, albeit changed. In a study of twelve individuals with early stage Alzheimer’s disease, Claire (2003) used interpretive phenomenological analysis (IPA) to identify a range of responses to challenges in memory function. This qualitative methodology is particularly relevant for understanding the participant’s view and subjective experience of their diagnosis. Participant interviews were transcribed and analysed using IPA to describe a list of themes related to self, memory, and change. Participant’s responses fell on a continuum from ‘self-maintaining’, in which existing identities were preserved, to ‘self-adjusting’, whereby the individual attempted to engage with the threat and integrate changes into
a new identity. The results attest to both the preservation and changes to identity in dementia. However, as a cross-sectional study it was not possible to establish from the participants’ reports the process of identity change as their dementia progressed.

Similarly, Beard (2004) conducted a pilot study to explore the subjective experiences of memory loss and diagnosis in early stage Alzheimer’s disease, and the impact this had on identity construction. A mixture of qualitative methodologies was used, including participant observation, in-depth interviews, and focus groups. All data was transcribed and analysed using the methods of grounded theory. Three emergent themes are reported; “defining moments”, “to tell or not to tell”, and “preservation”. The findings are used to demonstrate how in the early stages of dementia sufferers engage in strategies that actively preserve their identities in the face of memory loss.

In a comparative study of the experiences of 16 cancer sufferers and 20 dementia sufferers, Gillies and Johnston (2004) also present data that testifies to the processes of change and continuity of identity. A retrospective thematic analysis of two existing studies was conducted and demonstrated similarities in the illness experience of cancer and dementia patients. In particular, the findings illustrated the saliency of the concept of identity loss and maintenance as participants made sense of their changed situations. Gillies and Johnston (2004) discuss the clinical implications in terms of the need for caregivers ‘to provide care which nurtures and maintains that self’ (p.441).
There is also evidence showing that identity survives in people with severe dementia, reflected in both verbal and non-verbal communication (e.g. MacRae, 2002; Small, Geldart, Gutman, & Scott, 1998). Small et al. (1998) analysed videotaped interactions of seventeen residents in a special care unit who were at the severe stage of dementia. Discourse markers demonstrating the integrity of personal and social identity were identified and coded (e.g. first person pronouns). Although some residents could no longer communicate verbally, the researchers showed that self was effectively conveyed through forms of address and in conflicts in which residents defended their rights.

Case studies have also been used in the study of identity in dementia (e.g. Sabat & Harré, 1992; Sabat, 2002; Sabat, Napolitano & Fath, 2004) contributing in-depth first person accounts. Sabat (2002) described the case of Dr. M; a 75-year-old woman in the moderate-to-severe stages of AD. The data consisted of transcribed conversations between the researcher and Dr. M. Sabat (2002) defines identity through a social constructionist lens, suggesting that selfhood can be conceptualised in three different forms — Self 1, one’s personal identity expressed by the use of personal pronouns in the here-and-now; Self 2, a person’s physical and mental attributes that transcend time; Self 3, social identities which are situated and require the cooperation of others. Sabat (2002) makes a number of conclusions, arguing that moderate-to-severe AD does not preclude the existence of any of the three aforementioned aspects of identity. It is shown that losses in social personae (Self 3) can occur, but instead of being related to neuropathological deficits associated with the disease, it is caused by the tendency of others to focus on the
person’s Self 2 attributes occurring as a result of the disease process, and failing to accommodate the preferred Self 2 attributes that remain intact (e.g. mother, football supporter, philatelist).

However, it may be problematic to generalize from the findings of case studies because of small participant numbers. Nonetheless, it has been argued that psychosocial processes may affect identity in people with dementia as much as, or at least differently to, actual cognitive changes (Beard, 2004). Whilst case studies and other qualitative methodologies have certain weaknesses, such as small samples, they offer researchers access to the minutiae of social-psychological processes in discourse and interaction that may otherwise be neglected.

In summary, the body of research on identity in dementia presents a mixed picture of discontinuity, preservation, and transformation (Li & Orleans, 2002). A range of approaches have been employed, including non-research explanatory reports, qualitative studies, case studies, and quantitative methodologies. The number of relevant publications, however, remains small. To rely solely on neuropathological explanations for alleged changes to identity in dementia is to oversimplify the context of social and psychological aspects of the condition. The manner in which these factors interact requires further exploration (Claire, 2003). Moreover, the identity threat faced by persons with dementia indicates the need for a consideration of how best to defend it, and whether an identity intervention could have a beneficial effect on well-being.
2. Indications for Identity Interventions in Dementia

A small number of studies suggest the potential utility of intervening to stimulate and elicit a sense of identity in dementia sufferers. Cohen-Mansfield et al. (2000) used a single case-study to demonstrate the clinical utility of the identities of the person with dementia. Staff members acquiesced with the resident’s identity structures based on past professional roles. The resident’s new-found responsibilities provided him with a sense of purpose, and carers observed improvements in mood and self-worth as a result. In the same study, carers and relatives’ beliefs about the potential impact of enhanced identity in residents were surveyed. Respondents felt that it would be possible to enhance the sense of identity in most residents, and anticipated that doing so would contribute to the residents’ quality of life. Carers believed this contribution would be substantial for around one third of the residents.

Only one study has examined whether systematically utilizing an identity-enhancing intervention can impact on well-being in dementia. In a sample of 93 older adults with moderate-to-severe dementia, Cohen-Mansfield et al. (2006b) designed individualized interventions based on a person’s most salient role identities. Participants in the experimental group were compared with a control group of dementia sufferers involved in regular activities. Relative to controls, participants receiving the identity intervention showed greater pleasure and interest, higher levels of involvement in the intervention offered, less disorientation, greater identity awareness, and reduced agitation. Whether or not the benefits of the intervention are clinically meaningful is unclear, and no significant effects were observed for depression or anxiety scores. However, Cohen-Mansfield et al. (2006b) conclude that deliberately intervening to strengthen the identities
of people with dementia contributes to their well-being. This type of personalised care is consistent with recent policy documents such as the National Service Framework for Older People (Department of Health, 2001). The basic premises are not dissimilar to those of person-centred care (Kitwood, 1997) or what Wellin and Jaffe (2004) have coined ‘personal-as-identity care’ (p.275). In terms of clinical intervention, biographical information can potentially be used to engage residents in activities and discourse that enhances their identity.
3. References (Extended Introduction Appendix)


Appendix 2
(Extended Method Appendix)

Executive Summary

This section includes further information to supplement the ‘Method’ section of the manuscript. Due to word limitations, it was not possible to include all necessary details in the main body of the report. What follows is an outline of additional and supporting information that will contribute to the reader’s understanding of the study’s methodology and approach. In particular, this information addresses the following main points:

1. Pre-existing differences between residents recruited from standard care and residents recruited from dementia care (p. 64)
2. Further discussion of the study design (p. 67)
3. Details of the power calculation (p. 69)
4. Additional information about participating care homes (p. 72)
5. Participant information sheets and consent forms (p. 73)
6. Copies of ethical approval for the study (p. 79)
7. Further information concerning the nature of the reminiscence intervention and choice of comparison group (p. 81)
8. Questionnaires and measures used in the research (p. 83)
9. References (p. 106)

For consistency, the ordering of this extended appendix maps on to the order of presentation in the ‘Method’ section of the manuscript.
1. **Pre-existing differences between standard care and dementia care**

This section outlines preliminary analyses concerning the differences between participants who were recruited from standard care and participants recruited from dementia care. It was anticipated that residents in dementia care would have lower scores on measures of cognition on registering for the study. The descriptive data presented in Table 4 suggested this warranted further examination. This was done by comparing the baseline scores of the two groups. On average, ACE-R scores from participants in dementia care were significantly lower than those recruited from standard care. After allocation of participants to treatment condition, tests of difference were repeated across key baseline measures to compare group reminiscence to group skittles. After allocation, no differences were found between the treatment groups on all outcome measures including those measuring cognition.
<table>
<thead>
<tr>
<th>Outcome Variable</th>
<th>Care Level</th>
<th>Intervention</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard</td>
<td>Dementia</td>
<td>Reminiscence</td>
</tr>
<tr>
<td>ACE-R Total</td>
<td>54.6 (19.59)</td>
<td>41.34 (17.76)</td>
<td>46.61 (21.08)</td>
</tr>
<tr>
<td>ACE-R Memory</td>
<td>10.45 (5.90)</td>
<td>5.83 (5.20)</td>
<td>7.82 (6.79)</td>
</tr>
<tr>
<td>HADS Depression</td>
<td>3.97 (3.50)</td>
<td>5.85 (3.80)</td>
<td>4.71 (3.49)</td>
</tr>
<tr>
<td>HADS Anxiety</td>
<td>5.76 (5.19)</td>
<td>6.30 (4.32)</td>
<td>6.09 (4.77)</td>
</tr>
<tr>
<td>QOL-AD</td>
<td>35.93 (5.07)</td>
<td>36.50 (4.96)</td>
<td>36.32 (4.54)</td>
</tr>
<tr>
<td>Multiple Group Memberships</td>
<td>2.44 (1.18)</td>
<td>2.43 (1.31)</td>
<td>2.69 (1.28)</td>
</tr>
<tr>
<td>Maintenance of Group Memberships</td>
<td>2.79 (1.32)</td>
<td>2.23 (1.13)</td>
<td>2.53 (1.25)</td>
</tr>
<tr>
<td>New Group Memberships</td>
<td>2.81 (1.27)</td>
<td>2.21 (1.19)</td>
<td>2.60 (1.27)</td>
</tr>
<tr>
<td>Continuity</td>
<td>3.62 (1.22)</td>
<td>3.57 (0.98)</td>
<td>3.68 (1.11)</td>
</tr>
<tr>
<td>Personal Identity</td>
<td>4.19 (0.67)</td>
<td>3.99 (0.82)</td>
<td>4.15 (0.78)</td>
</tr>
</tbody>
</table>

Table 4. Pretest mean and standard deviation by care level and treatment condition for each outcome measure.
*Standard Care vs. Dementia Care.* The Shapiro-Wilk test of normality was used to check whether the data conformed to the assumption of normality. The Levene’s test was used to check whether the assumption of homogeneity of variance was upheld. Non-parametric tests have been used where indicated

On average, residents in standard care scored significantly higher on the ACE-R Total score than residents in dementia care, \( t(52) = 2.61, p = .012, \) two-tailed.

Standard care residents also performed significantly better on the ACE-R Memory subtest \( (Mdn = 10) \) than dementia care residents \( (Mdn = 4) \), \( U = 167.50, p = .001, \) two-tailed.

There were no differences between care levels for Multiple Group Memberships \( (U = 347.50, p = .85, \) two-tailed), Maintenance of Group Memberships \( (U = 278, p = .14, \) two-tailed), New Group Memberships \( (U = 255.50, p = .077, \) two-tailed), Continuity \( (U = 327, p = .46, \) two-tailed), or Personal Identity \( (t(53) = .99, p = .37, \) two-tailed).

There were also no differences between care levels for pretest HADS Depression scores \( (U = 250.50, p = .05, \) two-tailed), HADS Anxiety scores \( (U = 290.50, p = .30, \) two-tailed), or QOL-AD scores \( (t(54) = -.43, p = .67, \) two-tailed).

*Group Reminiscence vs. Group Skittles.* After participants were allocated to treatment groups, tests of difference using pretest data were repeated with

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9 When appropriate, the Mann-Whitney \( U \) test has been used as a non-parametric equivalent to the independent samples \( t \) test.
intervention type (group reminiscence vs. group skittles) as the between-subjects factor. The results show that pre-existing differences in cognitive ability between residents in standard care and dementia care were not observed after allocation.

For the ACE-R Total score there was no difference between group reminiscence and group skittles, \( t(52) = -0.38, p = 0.709 \), two-tailed. For the ACE-R Memory score no difference was observed between group reminiscence and group skittles, \( U = 257, p = 0.25 \), two-tailed.

No differences were observed between treatment groups for Multiple Group Memberships \( (U = 242.50, p = 0.064 \), two-tailed), Maintenance of Group Memberships \( (U = 297.50, p = 0.97 \), two-tailed), New Group Memberships \( (U = 301, p = 0.58 \), two-tailed), Continuity \( (U = 279, p = 0.34 \), two-tailed), or Personal Identity \( (U = 308.50, p = 0.39 \), two-tailed).

Finally, there was no difference between group reminiscence and group skittles for HADS Depression \( (U = 311, p = 0.84 \), two-tailed), HADS Anxiety \( (U = 307.50, p = 0.86 \), two-tailed), or QOL-AD \( (t(54) = 0.20, p = 0.84 \), two-tailed).

2. **Further discussion of the study design (Pretest-Posttest Control design)**

In the ‘Method’ section of the manuscript the study design was described in brief. The aim of this short section is to support and expand upon the information presented in the manuscript method, and provide a rationale for the use of a Pretest-Posttest Control (PPC) design.
The question of interest in the present study was whether the improvement in scores from pretest to posttest was greater for the reminiscence group relative to the comparison group. In a PPC design, the question is answered by computing the change between the pretest and posttest scores for each participant and analyzing these changes using a test of difference with treatment (i.e. reminiscence vs. skittles) as the only factor. If there is a main effect of treatment, then the change from pretest to posttest is not the same in the two groups. It is then possible to state whether one group has improved (or deteriorated) relative to the other during the intervention.

The treatment main effect of a PPC design produces results that are statistically equivalent to the interaction term in a 2 x 2 mixed factor analysis of variance (ANOVA) that uses treatment (intervention vs. control) as a between subjects factor and time (pretest vs. posttest) as a within subjects factor (Becker, 1999). If the interaction term is significant then the change between pretest and posttest is not the same in the two treatment groups (i.e. one group improved more than the other).

The effect of time (pretest vs. posttest), a within-subjects factor, was not a focus of the study hypotheses and has not been directly analysed; only between-subjects statistical comparisons were conducted. However, it is possible to make interpretations about change over time by examining whether the mean difference score for a given outcome is positive or negative. A positive difference score indicates a gain over time (i.e. posttest score was greater than pretest score), and a negative difference score indicates a loss over time (i.e. posttest score was lower than pretest score). No change between pretest and posttest is indicated by a
difference score approximating zero. Moreover, it has been argued that the 95% confidence interval provides additional information about the effectiveness of the two treatment conditions. When the upper and lower bounds of the 95% confidence interval include zero, the mean difference score is not significantly different from zero (Becker, 1999). The 95% confidence interval analysis can therefore be used to suggest whether there has been a significant change from pretest to posttest in either treatment group. When appropriate, the interpretation of the 95% confidence interval has been added to the description of results.

3. Power calculation

This section provides further details of the power calculations undertaken when planning the study. In particular, it addresses the selection of parameters that were used in determining the desired sample size.

In the first instance, results of previous research involving a similar intervention provided the effect sizes used in the calculation. Primarily this information was derived from meta-analyses. This was considered appropriate because meta-analysis combines the results of several related studies and provides a standardized measure of effect size that overcomes the problem of different studies using different scales.

The majority of research evaluating reminiscence in older adults has used well-being as the primary outcome measure. Scogin and McElreath (1994) conducted a review of 17 studies of the effectiveness of psychosocial treatments, including
reminiscence, for depression in older adults. The effect size for reminiscence therapy was $d = 1.05$, although this finding was based on only eight studies.

Bohlmeijer, Smit and Cuijpers (2003) conducted a meta-analysis of 20 controlled outcome studies of the effects of reminiscence and life review on depression. The majority of the studies included in the review involved residents from care homes. For each study a standardised effect size, $d$, was calculated. Overall a large effect size of $d = .84$ was found. However, the effect size specifically for group interventions was found to be $d = .68$.

Bohlmeijer, Roemer, Cuijpers and Smit (2007) included 15 controlled outcome studies in a meta-analysis of the effects of reminiscence on psychological well-being in older adults. Once again, the standardised effect size, $d$, was calculated. The effect size for group reminiscence interventions in this meta-analysis was $d = .67$. Previous research findings therefore indicate a trend for large effect sizes for indices of well-being with this type of intervention (Lipsey & Wilson, 1993).

Fewer studies have used cognition as an outcome variable, although there is some existing research. Two controlled studies report the impact of group reminiscence specifically on cognitive performance (Morgan, 2000; Thorgrimsen, Schweitzer, & Orrell, 2002). Thorgrimsen et al. (2002) evaluated a reminiscence group program and found an effect size of $d = .91$ on the MMSE at posttest. Morgan (2000) used the personal semantic schedule of the Autobiographical Memory Interview (Kopelman, Wilson, & Baddeley, 1990) to evaluate a group life-review intervention and found a large effect size of $d = 1.08$. 
As discussed in the manuscript, there are no known evaluation studies of reminiscence that use identity as an outcome variable. However, consistent with existing findings for other psychosocial outcomes (e.g. Bohlmeijer et al., 2007) a large effect size was also assumed for identity.

G*Power Version 3.0.8 (Faul, Erdfelder, Lang, & Buchner, 2007) was used to make the power calculation. Given the effect sizes noted in previous research, the lowest, and therefore most conservative estimate, was adopted (i.e., $d = .67$). The G*Power output is displayed in Figure 2. This indicates that a sample of 58 participants would give the desired degree of statistical power, thereby reducing the chance of making a type II error.

| t tests - Mean: Difference between two independent means (two groups) |
| Analysis: A priori: Compute required sample size |
| Input: Tail(s) = One |
| Effect size d = 0.67 |
| α err prob = 0.05 |
| Power (1-β err prob) = 0.8 |
| Allocation ratio N2/N1 = 1 |
| Output: Noncentrality parameter $\delta$ = 2.551284 |
| Critical t = 1.672522 |
| Df = 56 |
| Sample size group 1 = 29 |
| Sample size group 2 = 29 |
| Total sample size = 58 |
| Actual power = 0.809324 |

Figure 2. G*Power protocol display for the power calculation
4. Participating care homes

Table 5 presents a breakdown of the types of placement that each home is registered to provide, and shows maximum occupancy. As can be seen, all of the participating homes had provision for both standard care and dementia care beds.

Table 5. Additional information about participating residential homes

<table>
<thead>
<tr>
<th>Care Home</th>
<th>Ownership</th>
<th>CSCI(^{10}) Care Categories (with registered number of places)</th>
<th>Maximum Occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Somerset Care Ltd.</td>
<td>Old Age (36)</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alzheimer’s / Dementia (31)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Somerset Care Ltd.</td>
<td>Old Age (53)</td>
<td>83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[including care for up to 15 persons with Alzheimer’s /Dementia]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mental Disorder (30)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Somerset Care Ltd.</td>
<td>Old Age (80)</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[including care for up to 22 persons with Alzheimer’s /Dementia]</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Somerset Care Ltd.</td>
<td>Old Age (16)</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alzheimer’s / Dementia (33)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Somerset Care Ltd.</td>
<td>Old Age (27)</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alzheimer’s / Dementia (14)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Somerset Care Ltd.</td>
<td>Old Age (38)</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alzheimer’s / Dementia (19)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Cornwall Care</td>
<td>Old Age (10)</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alzheimer’s / Dementia (28)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mental Disorder (28)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cornwall Care</td>
<td>Old Age (8)</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alzheimer’s / Dementia (26)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mental Disorder (26)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Cornwall Care</td>
<td>Old Age (7)</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alzheimer’s / Dementia (7)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mental Disorder (12)</td>
<td></td>
</tr>
</tbody>
</table>

\(^{10}\) CSCI stands for the Commission for Social Care Inspection. It is an independent organisation set up to regulate, inspect and review all adult social care services in the public, private and voluntary sectors in England.
5. Participant information sheets and consent forms

For reference, the following documents have been included on the following pages:

a. Resident information sheet and consent form (p. 74)
b. Staff / Relative information sheet (p. 76)
c. Next-of-kin consent form (p. 78)
Dear (Name)

I would like to invite you to take part in a study. This letter explains the study.

**The Study**

Being part of a group or taking part in activities can improve the way people feel. We want to see if being in a group or taking part in an activity improves your feelings of well-being.

**What is Involved?**

1. I would come to see you to talk about your life so far and how you are feeling. This would take about one hour of your time.
2. The next step would involve you taking part in an activity once a week, for six weeks. It would be one of these three activities:
   - Talking about what you remember from the past, in a small group.
   - Talking about what you remember from the past, with me.
   - Playing skittles.
3. I would come back afterwards and ask you the same questions again.
All the information we collect about you will be kept in a safe place. You don’t have to take part in the study. If you decide to take part, you will be asked to sign the form below. Even after you have signed the form, you can drop out at any point without giving a reason.

If you would like to ask any questions, please let the care staff know and I will come by to talk to you.

Yours sincerely,

(Researcher’s Name)    (Researcher’s Name)

Supervisors:
(Supervisor Names)

Please print your name here________________________

I have read this letter, and would like to take part in the study.

Signature_________________________ Date_________
Project Information Sheet
Study Title: Memory, Identity, and Well-Being

You are being invited to take part in our study. Before you decide whether to take part, here is some more information for you.

What is the purpose of this study?

Previous research has shown that we often draw on the past when thinking about the present. This affects people’s mood and sense of wellbeing. These positive effects have been found mostly when people are thinking about the past with others in groups.

While we know that these activities are improving people’s well being, we do not know why that is the case. The study we are planning at Somerset care is aimed at examining this. It is hoped that the results can be used to help us develop services for people in residential homes.

What does the research involve?

If you agree to take part, you will be asked to participate in one of the following groups:

- To join a group with four other people from your residential home and to talk about your memories of the past. This will happen for 30 minutes a week for 6 weeks.

- To meet individually with one of the researchers to talk about your memories of the past. This will happen for 30 minutes a week for 6 weeks.

- To join a second group with four other people from your residential home. In this group you will do a shared activity, such as playing skittles. This will happen for 30 minutes a week for 6 weeks.

A researcher will meet with you before and afterwards to talk with you about your life. This will take about one hour.
We will be seeking some information about your wellbeing from staff, and some information from your family about before and after you came to residential care.

Do I have to take part?

No. It is your choice whether to take part or not.

You are free to withdraw at any time without giving a reason. If you decide not to take part, your normal care will not be affected.

How will I benefit from participating?

Taking part in the study could provide a chance to interact with others, discuss past roles and successes, and share memories. The sessions will be engaging and enjoyable.

Participation in the study will not cost you anything, and you will not have to travel in order to take part.

What are the disadvantages in taking part?

A disadvantage in taking part is the time involved in taking part (six 30 minute sessions and talking with us before and after you take part).

Who will have access to information I give you?

Any information we collect about you will be kept private and anonymous. Information will be stored securely. Only the group of researchers involved in the study will have access to it.

Has the study been approved by a research ethics committee?

This study is being carried out by researchers at the University of Exeter. It has been checked and approved by the ethics committee at the School of Psychology, University of Exeter.

Are there plans to tell people about the results of the study?

It is our aim to write a report describing the study and sharing the findings. This report may be published in a scientific journal. Your name and other personal information will never be printed in any publication.

Any Questions?

If anything is not clear, or if you would like to know more, please ask staff to contact us and we will answer any questions about the study.

Name(s): (Researchers’ Names)
Supervisor: (Supervisors’ Names)
Consent Form to Participate in a Research Study
(to be completed by next of kin)

Project Title: Memory, Social Identity, and Well-Being

Researchers: (Researchers’ Names)

Name of Resident:

Thank you for providing consent for your relative to take part in this study. Please read the statements below and place your initials in the boxes to confirm that you agree to them taking part. Please return this form in the envelope provided.

Please initial boxes

1. I confirm that I have read and understood the Project Information Sheet for the above study and have had the opportunity to ask questions about the study. ☐

2. I understand that my relative’s participation is voluntary and that he/she is free to withdraw at any time without giving any reason. If he/she withdraws from the study, his/her rights and care will not be affected. ☐

3. I understand that the information I provide will be stored securely on computer and in locked filing cabinets. Only the researcher and research supervisor will have access to the information. ☐

4. I agree for the above person to take part in the study. ☐

5. I would like to receive a written summary of the results. YES/NO ☐

Name of relative (please print clearly)    Date    Signature
6. Copies of ethical approval forms for the study

<table>
<thead>
<tr>
<th>PSYCHOLOGY DEPARTMENT ETHICAL APPROVAL FORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tick one box: STAFF Project ✓ POSTGRADUATE Project UNDERGRADUATE Project</td>
</tr>
<tr>
<td>TRACK A TRACK B</td>
</tr>
<tr>
<td>Title Of Project: Social Identity, Memory and Well-Being in Older Adults</td>
</tr>
<tr>
<td>Name of researcher(s): Adam Bevins, Sophie Hayward (DClinPsy)</td>
</tr>
<tr>
<td>Name of supervisor (for student research): Cath Haslam</td>
</tr>
<tr>
<td>Date: 13/2/07</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Will you describe the main experimental procedures to participants in advance, so that they are informed in advance about what to expect?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Will you tell participants that their participation is voluntary?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Will you obtain written consent for participation?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>If the research is observational, will you ask participants for their consent to being observed?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Will you tell participants that they may withdraw from the research at any time or for any reason?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>With questionnaires, will you give participants the option of omitting questions they do not want to answer?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

If you have ticked No to any of Q1-8, but have ticked box A overleaf, please give any explanation on a separate sheet. (Note: N/A = not applicable)

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Will your project involve deliberately misleading participants in any way?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Is there a realistic risk of any participants experiencing either physical or psychological distress or discomfort? If Yes, give details on a separate sheet and state what you will tell them to do if they should experience any problems (e.g. who they can contact for help).</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

If you have ticked Yes to 9 or 10 you should normally tick box B overleaf; if not, please give a full explanation on a separate sheet.

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Does your work involve work with animals? If yes, please tick box B overleaf.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Do participants fall into any of the following special groups? If they do, please refer to BPS guidelines, and tick box B overleaf. Please note that you may also need to gain satisfactory CRB clearance or equivalent for overseas participants.</td>
<td>School children (under 18 years of age)</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>People with learning or communication difficulties</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Patients</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>People in custody</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>People engaged in illegal activities (e.g. drug taking)</td>
<td>✓</td>
</tr>
</tbody>
</table>

There is an obligation on the lead researcher to bring to the attention of the Departmental Ethics Committee projects with ethical implications not clearly covered by the above checklist.
PLEASE TICK EITHER BOX A OR BOX B BELOW AND PROVIDE THE DETAILS REQUIRED
IN SUPPORT OF YOUR APPLICATION, THEN SIGN THE FORM.

Please tick:

A. I consider that this project has no significant ethical implications to be brought before the Departmental Ethics Committee.

In less than 150 words, provide details of the experiment including the number and type of participants, methods and tests to be used (i.e. the procedure).

This form (and any attachments) should be submitted to the Departmental Ethics Committee where it will be considered by the Chair before it can be approved.

B. I consider that this project may have ethical implications that should be brought before the Departmental Ethics Committee, and/or it will be carried out with children or other vulnerable populations.

Please provide all the further information listed below in a separate attachment.

1. Title of project.
2. Purpose of project and its academic rationale.
4. Participants: a) Human research: Recruitment methods, number, age, gender, exclusion/inclusion criteria.
   b) Animal research: location of study site, method of obtaining / marking / identifying subjects, handling procedures for field experiments.
5. Consent and participant information arrangements, debriefing. (Not relevant for animal research) Please attach intended information and consent forms.
6. A clear but concise statement of the ethical considerations raised by the project and how you intend to deal with them.
7. Estimated start date and duration of project.

This form should be submitted to the Departmental Ethics Committee for consideration. If any of the above information is missing, your application will be returned to you.

I am familiar with the BPS Guidelines for ethical practices in psychological research (and have discussed them with other researchers involved in the project.)

Signed:_________________________ Print Name ADAM BEVINS Email ab225@exeter.ac.uk Date 13/2/07
(UG/PG Researcher(s), if applicable)

Signed:_________________________ Print Name SOPHIE HAYWARD Email sh243@exeter.ac.uk Date 13/2/07
(UG/PG Researcher(s), if applicable)

Signed:_________________________ Print Name CATH HASLAM Email c.haslam@exeter.ac.uk Date 13/2/07
(Lead Researcher or Supervisor)

STATEMENT OF ETHICAL APPROVAL

This project has been considered using agreed Departmental procedures and is now approved.

Signed:_________________________ Print Name ___________________________ Date 28/2/07
(Chair, Departmental Ethics Committee)
7. Reminiscence Intervention and Group Control Activity

This section provides further details about the group reminiscence intervention. It also gives more details about the Memory Box objects used in the reminiscence work.

The two trainee clinical psychologists working on this project attended a two-day training course ‘Reminiscence in Dementia Care’ at the Age Exchange Reminiscence Centre in Blackheath, London. In consultation with the facilitator of the training course, it was recommended that the topics for the reminiscence sessions followed an idiographic structure that would draw on participants’ personal histories. It was anticipated that personal memories, as opposed to public memories, would be remembered better. As a result, the participants with more severe cognitive impairment would still be able to make a contribution to group discussions. For this reason, broad themes pertaining to the lifespan were selected for reminiscence sessions (e.g. school days, weddings).

Stimulus objects were borrowed from the Dorset Memory Box, a registered charity that has launched a lending library service of everyday items for reminiscence activities with older adults. Each memory box contains approximately 10 items from 1900-1960 that can be handled and are of suitable interest to both men and women. All boxes are accompanied by details of the items they contain in order to educate the facilitator.

Seven boxes were loaned from the Dorset Memory Box library. Table 6 shows some examples of their contents. Items from seven boxes were distributed between
the six topics, as outlined in the manuscript. The contents of the boxes were divided amongst the group facilitators, ensuring that they each had a minimum of four items per topic. When there were multiple quantities of the same item in a box, these were divided amongst the facilitators in order to increase their allocation of items.

**Table 6. Description of Memory Box Items**

<table>
<thead>
<tr>
<th>Memory Box</th>
<th>Example Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Childhood’</td>
<td>Games board, Doll’s house furniture, Picture book, Abacus, Night dresses, Pencil sharpener, Wooden tanks</td>
</tr>
<tr>
<td>‘School’</td>
<td>Pen &amp; inkwell, Boys Own paper, School tie, School Panama hat, Samples of knitting</td>
</tr>
<tr>
<td>‘Gardening’</td>
<td>Small wooden trug, Bird feeder, Long handled trowel, Row marker, Adam the Gardener books</td>
</tr>
<tr>
<td>‘Laundry’</td>
<td>Wooden tongs, Robin starch, Sunlight soap and blue bag, Floral soap flakes, Postcards, Gypsy pegs, Flat iron</td>
</tr>
<tr>
<td>‘Weddings’</td>
<td>White bow tie, Flower head-dresses, Family wedding pictures, Wedding dress, Garter, Cake decoration</td>
</tr>
<tr>
<td>‘Baby box’</td>
<td>Lace christening gown, Handmade silk pram cover, Pyrex baby feeding bottle, Milton bottle, Terry towelling nappy</td>
</tr>
<tr>
<td>‘A day out’</td>
<td>Kodak camera with filters and paper, Money and assorted coins, Bus tickets, Lemonade bottle with marble stopper</td>
</tr>
</tbody>
</table>

Reminiscence sessions themselves were relatively unstructured, enabling residents to choose which memories they wished to share and discuss. Memory box items were passed between group members one at a time as an aid to stimulating memories. Group facilitators gave gentle encouragement and aimed to create opportunities for members to feel heard, accepted and to enjoy themselves. Ideas were used from handbooks produced by Gibson (2006) and Schweitzer (1998).
The decision to use a group control activity instead of a no-treatment control condition was made on the basis of practical and ethical grounds. Firstly, residents in the participating homes who would have been allocated to a no-treatment group would have become aware that others were receiving interventions, and may have felt that they were missing out. This situation was felt to be unethical by the management of Somerset Care Ltd. during the consultation process. Secondly, due to timescales it would not have been possible to return later and administer the intervention to residents who were in the no-treatment group in the first instance. Therefore, discussions took place to find a *comparison* condition that residents would also be motivated to take part in. Skittles was recommended by management and staff in participating homes as an activity which they knew to be enjoyable and not harmful. It was also a relatively gender-neutral activity. Participating homes had access to skittle alleys or table-top skittle sets and these were made available for the purposes of the study.

8. *Copies of Assessment Questionnaires*

a.  EXITS questionnaire (p. 84)

b.  EXITS visual response scales (p. 89)

c.  ACE-R (p. 91)

d.  RBANS Story recall and recognition item (p. 97)

e.  HADS questionnaire (p. 98)

f.  Example HADS visual response scale (p. 101)

g.  QOL-AD questionnaire (p. 102)

h.  Example QOL-AD visual response scale (p. 105)
EXITS: Questions for Interview

I would like to know about the types of groups that you used to belong to and now belong to. They could be leisure or social groups (e.g., book group or gardening club); community groups (e.g., church group); sporting groups (e.g., rugby club); work groups (e.g., sales team); activity groups; or any others you can think of.

SECTION 1

Before you came to residential care, what groups were important to you?

<table>
<thead>
<tr>
<th>1. Group Membership</th>
<th>2. How important is this group to you</th>
<th>3. Is this a group you still belong to?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Circle one number for each group</td>
<td>Circle yes or no</td>
</tr>
<tr>
<td>1</td>
<td>not important</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>not important</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>not important</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>not important</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>not important</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>not important</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>o</td>
<td>No</td>
</tr>
</tbody>
</table>
SECTION 2

Please answer the following questions about the groups you belong to.

1. I am a member of lots of different groups.
   do not agree at all -- - o + ++ agree completely

2. I am active in lots of different groups.
   do not agree at all -- - o + ++ agree completely

3. I have friends who are in lots of different groups.
   do not agree at all -- - o + ++ agree completely

SECTION 3

Please answer the following questions about the groups you belong to after moving to residential care.

1. Since moving to residential care, I still belong to the same groups.
   do not agree at all -- - o + ++ agree completely

2. Since moving to residential care, I am still active in the same groups.
   do not agree at all -- - o + ++ agree completely

3. Since moving to residential care, I still have friends in the same groups.
   do not agree at all -- - o + ++ agree completely

4. Since moving to residential care, I have joined one or more new groups.
   do not agree at all -- - o + ++ agree completely

5. Since moving to residential care, I am active in one or more new groups.
   do not agree at all -- - o + ++ agree completely

6. Since moving to residential care, I have become friends with people in one or more new groups.
   do not agree at all -- - o + ++ agree completely
SECTION 4

Please think now about how the stroke affected your life and respond to the following questions.

1. In the last few years, my life has changed a lot.
   do not agree at all    --     -     o     +     ++       agree completely

2. In the last few years, my life has changed for the worse.
   do not agree at all    --     -     o     +     ++       agree completely

3. In the last few years, the quality of my life has improved.
   do not agree at all    --     -     o     +     ++       agree completely

4. I miss my life before residential care.
   do not agree at all    --     -     o     +     ++       agree completely

5. I am feeling quite nostalgic about my life before residential care.
   do not agree at all    --     -     o     +     ++       agree completely

6. I miss my life before residential care.
   do not agree at all    --     -     o     +     ++       agree completely

7. I don’t think much about my life before residential care.
   do not agree at all    --     -     o     +     ++       agree completely

Continuity Scale

1. I am the same person as I always was.
   do not agree at all    --     -     o     +     ++       agree completely

2. Over time, lots of things have changed, but I am still the same person.
   do not agree at all    --     -     o     +     ++       agree completely

3. I can not make sense of the changes I have been through.
   do not agree at all    --     -     o     +     ++       agree completely
4. My past helps me to understand my present life.
   do not agree at all -- - o + ++ agree completely

5. I am a different person now than I was in the past.
   do not agree at all -- - o + ++ agree completely

6. There is no connection between my past and present.
   do not agree at all -- - o + ++ agree completely

Degree of change_______________________________

Comparing your present life with your past life (before residential care)

1. I have had a lot of changes in my life.
   do not agree at all -- - o + ++ agree completely

2. My life has been very predictable from one year to the next.
   do not agree at all -- - o + ++ agree completely

Quality of Life Change___________________________

1. Life experiences have changed me for the better.
   do not agree at all -- - O + ++ agree completely

2. Life changes have been bad for me.
   do not agree at all -- - O + ++ agree completely

3. Changes in my life have helped me to grow.
   do not agree at all -- - O + ++ agree completely

Global Sense of Self_____________________________

1. I am very different from other people here.
   do not agree at all -- - o + ++ agree completely
2. I know what I like and what I don’t like.
   
   do not agree at all  --  -  o  +  ++  agree completely

3. I know what kind of person I am.
   
   do not agree at all  --  -  o  +  ++  agree completely

4. I know what my morals are.
   
   do not agree at all  --  -  o  +  ++  agree completely

5. I have strong beliefs.
   
   do not agree at all  --  -  o  +  ++  agree completely

6. I know what I want from life.
   
   do not agree at all  --  -  o  +  ++  agree completely

7. I am aware of the roles and responsibilities I have in my life.
   
   do not agree at all  --  -  o  +  ++  agree completely
not important  neutral  very important
do not agree neutral agree completely
# Addenbrooke's Cognitive Examination - ACE-R

**Final Revised Version A (2005)**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date of testing: .......... / ....... / .......</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of birth:</td>
<td>Tester's name: .........................................</td>
</tr>
<tr>
<td>Hospital no.:</td>
<td>Age at leaving full-time education: .........................</td>
</tr>
<tr>
<td>Addressograph</td>
<td>Occupation: .............................................</td>
</tr>
<tr>
<td></td>
<td>Handedness: .............................................</td>
</tr>
</tbody>
</table>

## Orientation

- **Ask:** What is the Day, Date, Month, Year, Season?

- **Ask:** Which Building, Floor, Town, County, Country?

| [Score 0-5] |

## Registration

Tell: 'I’m going to give you three words and I’d like you to repeat after me: lemon, key and ball.'
After subject repeats, say 'Try to remember them because I’m going to ask you later'. Score only the first trial (repeat 3 times if necessary).

Register number of trials ........

| [Score 0-3] |

## Attention & Concentration

- **Ask:** the subject: could you take 7 away from a 100? After the subject responds, ask him or her to take away another 7 to a total of 5 subtractions. If subject make a mistake, carry on and check the subsequent answer (i.e. 93, 84, 77, 70, 63 - score 4)

  Stop after five subtractions (93, 86, 79, 72, 65) ........ ........ ........ ........ ........

- **Ask:** 'could you please spell WORLD for me? Then ask him/her to spell it backwards:

  ........ ........ ........ ........

| [Score 0-5] |

## Memory - Recall

- **Ask:** Which 3 words did I ask you to repeat and remember?

  ........ ........ ........

| [Score 0-3] |

## Memory - Anterograde Memory

Tell: 'I’m going to give you a name and address and I’d like you to repeat after me. We’ll be doing that 3 times, so you have a chance to learn it. I’ll be asking you later'

Score only the third trial

<table>
<thead>
<tr>
<th>1st Trial</th>
<th>2nd Trial</th>
<th>3rd Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harry Barnes</td>
<td>........</td>
<td>........</td>
</tr>
<tr>
<td>73 Orchard Close</td>
<td>........</td>
<td>........</td>
</tr>
<tr>
<td>Kingsbridge</td>
<td>........</td>
<td>........</td>
</tr>
<tr>
<td>Devon</td>
<td>........</td>
<td>........</td>
</tr>
</tbody>
</table>

| [Score 0-7] |

## Memory - Retrograde Memory

- **Name of current Prime Minister**: ..........................................................
- **Name of the woman who was Prime Minister**: ..........................................
- **Name of the USA president**: .................................................................
- **Name of the USA president who was assassinated in the 1960’s**: .................

| [Score 0-4] |
**VERBAL FLUENCY - Letter 'P' and animals**

- **Letters**
  
  Say: 'I’m going to give you a letter of the alphabet and I’d like you to generate as many words as you can beginning with that letter, but not names of people or places. Are you ready? You’ve got a minute and the letter is P'.

  [Score 0 - 7]

<table>
<thead>
<tr>
<th>Letter</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td></td>
</tr>
</tbody>
</table>

- **Animals**

  Say: 'Now can you name as many animals as possible, beginning with any letter?'

  [Score 0 - 7]

<table>
<thead>
<tr>
<th>Letter</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LANGUAGE - Comprehension**

- **Show written instruction:**

  Close your eyes

  [Score 0-1]

<table>
<thead>
<tr>
<th>Instruction</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close your eyes</td>
<td></td>
</tr>
</tbody>
</table>

- **3 stage command:**

  'Take the paper in your right hand. Fold the paper in half. Put the paper on the floor'.

  [Score 0-3]

<table>
<thead>
<tr>
<th>Instruction</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take the paper in your right hand. Fold the paper in half. Put the paper on the floor</td>
<td></td>
</tr>
</tbody>
</table>

**LANGUAGE - Writing**

- **Ask the subject to make up a sentence and write it in the space below:**

  Score 1 if sentence contains a subject and a verb (see guide for examples)

  [Score 0-1]

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**LANGUAGE - Repetition**

- Ask the subject to repeat: *hippopotamus*, *eccentricity*, *unintelligible*, *statistician*
  
  Score 2 if all correct; 1 if 3 correct; 0 if 2 or less.

- Ask the subject to repeat: *Above, beyond and below*

- Ask the subject to repeat: *No ifs, ands or buts*

**LANGUAGE - Naming**

- Ask the subject to name the following pictures:

  - [Diagram of pencil]
  - [Diagram of watch]
  - [Diagram of penguin]
  - [Diagram of anchor]
  - [Diagram of camel]
  - [Diagram of barrel]
  - [Diagram of harp]
  - [Diagram of alligator]
  - [Diagram of accordion]

**LANGUAGE - Comprehension**

- Using the pictures above, ask the subject to:
  - Point to the one which is associated with the monarchy
  - Point to the one which is a marsupial
  - Point to the one which is found in the Antarctic
  - Point to the one which has a nautical connection

- **Score 0-4**
### LANGUAGE - Reading

- Ask the subject to read the following words: (Score 1 only if all correct)
  - sew
  - pint
  - soot
  - dough
  - height

### VISUOSPATIAL ABILITIES

- Overlapping pentagons: Ask the subject to copy this diagram:

![Overlapping Pentagons Diagram]

- Wire cube: Ask the subject to copy this drawing (for scoring, see instructions guide)

![Wire Cube Diagram]

- Clock: Ask the subject to draw a clock face with numbers and the hands at ten past five. (for scoring see instruction guide: circle = 1, numbers = 2, hands = 2 if all correct)

![Clock Diagram]
Ask the subject to count the dots without pointing them.
ADDENBROOKE'S COGNITIVE EXAMINATION - ACE-R

PERCEPTUAL ABILITIES

- Ask the subject to identify the letters [Score 0-4]

---

RECALL

- Ask "Now tell me what you remember of that name and address we were repeating at the beginning"

<table>
<thead>
<tr>
<th>Harry Barnes</th>
<th>Kingsbridge</th>
<th>Devon</th>
</tr>
</thead>
<tbody>
<tr>
<td>73 Orchard Close</td>
<td>76 Kingsbridge</td>
<td>73 Devon</td>
</tr>
</tbody>
</table>

[Score 0-7] 0

RECOGNITION

- This test should be done if subject failed to recall one or more items. If all items were recalled, skip the test and score 5. If only part is recalled start by ticking items recalled in the shadowed column on the right hand side. Then test not recalled items by telling "ok, I'll give you some hints: was the name X, Y or Z" and so on. Each recognised item scores one point which is added to the point gained by recalling.

<table>
<thead>
<tr>
<th>Jerry Barnes</th>
<th>Harry Barnes</th>
<th>Harry Bradford</th>
<th>recalled</th>
</tr>
</thead>
<tbody>
<tr>
<td>37 Orchard Place</td>
<td>73 Oak Close</td>
<td>76 Kingsbridge</td>
<td>recalled</td>
</tr>
<tr>
<td>Oakhampton</td>
<td>Orchard Close</td>
<td>Darlington</td>
<td>recalled</td>
</tr>
<tr>
<td>Devon</td>
<td>Dorset</td>
<td>Somerset</td>
<td>recalled</td>
</tr>
</tbody>
</table>

RECOGNITION MEMOY

SCORES

<table>
<thead>
<tr>
<th>Subscores</th>
<th>Attention and Orientation</th>
<th>Memory</th>
<th>Fluency</th>
<th>Visuospatial</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMSE</td>
<td>78</td>
<td>26</td>
<td>14</td>
<td>72</td>
</tr>
<tr>
<td>ACE-R</td>
<td>/30</td>
<td>/100</td>
<td>/100</td>
<td>/100</td>
</tr>
</tbody>
</table>

Normative values based on 63 controls aged 52-75 and 142 dementia patients aged 46-86
Cut-off <88 gives 94% sensitivity and 89% specificity for dementia
Cut-off <82 gives 84% sensitivity and 100% specificity for dementia
RBANS

Story B

Recall

(Tick items correctly recalled)

1. On Monday
2. Fifth
3. of March
4. in Brighton, Sussex
5. a storm hit.
6. Although 2 million pounds
7. in damage was done
8. to the waterfront
9. only seven people
10. were injured (hurt)
11. and nobody (no one)
12. was killed.

Total Score = (Range = 0-12)

Story B

Recognition Items

(Correct responses in bold and underline)

1. Was it **Monday** or Sunday?
2. Was it in **March** or in May?
3. Was it in Bath or in **Brighton**?
4. Was it a **storm** or a tornado?
5. Was it **two million pounds** or four million pounds in damage?
6. Was the **waterfront** or the town hall damaged?
7. Were **seven** people or ten people injured?
8. How many were killed – three or **none**?

Total Score = (Range = 0-8)
Hospital Anxiety and Depression Scale

I feel tense or ‘wound-up’:

Most of the time
A lot of the time
From time to time, occasionally
Not at all

I still enjoy the things I used to enjoy:

Definitely as much
Not quite so much
Only a little
Hardly at all

I get a sort of frightening feeling as if something awful is about to happen:

Very definitely and quite badly
Yes, but not too badly
A little, but it doesn’t worry me
Not at all

I can laugh and see the funny side of things:

As much as I always could
Not quite so much now
Definitely not so much now
Not at all

Worrying thoughts go through my mind:

A great deal of the time
A lot of the time
From time to time but not too often
Only occasionally

**I feel cheerful:**
- Not at all
- Not often
- Sometimes
- Most of the time

**I can sit at ease and feel relaxed**
- Definitely
- Usually
- Not often
- Not at all

**I feel as if I am slowed down:**
- Nearly all the time
- Very often
- Sometimes
- Not at all

**I get a sort of frightened feeling like ‘butterflies’ in the stomach:**
- Not at all
- Occasionally
- Quite often
- Very often

**I have lost interest in my appearance:**
- Definitely
- I don’t take as much care as I should
- I may not take quite as much care
I take just as much care as ever

I feel restless as if I have to be on the move:

Very much indeed
Quite a lot
Not very much
Not at all

I look forward with enjoyment to things:

As much as I ever did
Rather less than I used to
Definitely less that I used to
Hardly at all

I get sudden feelings of panic:

Very often indeed
Quite often
Not very often
Not at all

I can enjoy a good book or radio or TV programme:

Often
Sometimes
Not often
Very seldom

Now check that you have answered all the questions

Thank you
Definitely as much
Not quite so much
Only a little
Hardly at all
The QOL-AD is administered in interview format to individuals with dementia, following the instructions below. Hand the form to the participant, so that he or she may look at it as you give the following instructions (instructions should closely follow the wording given in bold type):

I want to ask you some questions about your quality of life and have you rate different aspects of your life using one of four words: poor, fair, good, or excellent.

**Point to each word (poor, fair, good, and excellent) on the form as you say it.**

When you think about your life, there are different aspects, like your physical health, energy, family, money, and others. I’m going to ask you to rate each of these areas. We want to find out how you feel about your current situation in each area.

If you’re not sure about what a question means, you can ask me about it. If you have difficulty rating any item, just give it your best guess.

It is usually apparent whether an individual understands the questions, and most individuals who are able to communicate and respond to simple questions can understand the measure. If the participant answers all questions the same, or says something that indicates a lack of understanding, the interviewer is encouraged to clarify the question. However, under no circumstances should the interviewer suggest a specific response. Each of the four possible responses should be presented, and the participant should pick one of the four.

If a participant is unable to choose a response to a particular item or items, this should be noted in the comments. If the participant is unable to comprehend and/or respond to two or more items, the testing may be discontinued, and this should be noted in the comments.

As you read the items listed below, ask the participant to circle her/his response. If the participant has difficulty circling the word, you may ask her/him to point to the word or say the word, and you may circle it for him or her. You should let the participant hold his or her own copy of the measure, and follow along as you read each item.

1. First of all, how do you feel about your physical health? Would you say it’s poor, fair, good, or excellent? Circle whichever word you think best describes your physical health right now.

2. How do you feel about your energy level? Do you think it is poor, fair, good, or excellent? If the participant says that some days are better than others, ask him or her to rate how she/he has been feeling most of the time lately.

3. How has your mood been lately? Have your spirits been good, or have you been feeling down? Would you rate your mood as poor, fair, good, or excellent?

4. How about your living situation? How do you feel about the place you live now? Would you say it’s poor, fair, good, or excellent?

5. How about your memory? Would you say it is poor, fair, good, or excellent?

6. How about your family and your relationship with family members? Would you describe it as poor, fair, good, or excellent? If the respondent says they have no family, ask about brothers, sisters, children, nieces, nephews.
7. How do you feel about your marriage? How is your relationship with (spouse’s name). Do you feel it's poor, fair, good, or excellent? Some participants will be single, widowed, or divorced. When this is the case, ask how they feel about the person with whom they have the closest relationship, whether it’s a family member or friend. If there is a family caregiver, ask about their relationship with this person. If there is no one appropriate, or the participant is unsure, score the item as missing. If the participant’s rating is of their relationship with someone other than their spouse, note this and record the relationship in the comments section.

8. How would you describe your current relationship with your friends? Would you say it's poor, fair, good, or excellent? If the respondent answers that they have no friends, or all their friends have died, probe further. Do you have anyone you enjoy being with besides your family? Would you call that person a friend? If the respondent still says they have no friends, ask how do you feel about having no friends—poor, fair, good, or excellent?

9. How do you feel about yourself—when you think of your whole self, and all the different things about you, would you say it's poor, fair, good, or excellent?

10. How do you feel about your ability to do things like chores around the house or other things you need to do? Would you say it's poor, fair, good, or excellent?

11. How about your ability to do things for fun, that you enjoy? Would you say it's poor, fair, good, or excellent?

12. How do you feel about your current situation with money, your financial situation? Do you feel it's poor, fair, good, or excellent? If the respondent hesitates, explain that you don’t want to know what their situation is (as in amount of money), just how they feel about it.

13. How would you describe your life as a whole. When you think about your life as a whole, everything together, how do you feel about your life? Would you say it’s poor, fair, good, or excellent?

SCORING INSTRUCTIONS FOR THE QOL:

Points are assigned to each item as follows: poor=1, fair=2, good=3, excellent=4.

The total score is the sum of all 13 items.
### Quality of Life: AD
(Interview version for the person with dementia)

Interviewer administer according to standard instructions. Circle responses.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>2</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
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<td>Good</td>
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<tr>
<td>3</td>
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<td>Good</td>
</tr>
<tr>
<td>4</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
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<tr>
<td>5</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
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<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>6</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>7</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
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<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>8</td>
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<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
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<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
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<td>Good</td>
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<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
<td>Poor</td>
<td>Poor</td>
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<td>Good</td>
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<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
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<td>Good</td>
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<tr>
<td>12</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
<tr>
<td>13</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Poor</td>
<td>Good</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Good</td>
</tr>
</tbody>
</table>
Poor  Fair  Good  Excellent
References

(Extended Method Appendix)


Appendix 3
(Extended Results Appendix)

Executive Summary

The Extended Results Appendix includes further information to supplement the ‘Results’ section of the manuscript. What follows is an outline of additional and supporting information that will expand upon the main results of the study. This information addresses the following main points:

10. Data screening (p. 109)
11. Interdependence of groups (p. 110)
12. Tests of parametric assumptions (p. 112)
13. Further details about the RBANS story measure (recall and recognition components), and its exclusion from the analysis (p. 115)
14. References (p. 118)
1. *Data Screening*\(^\text{13}\)

Before completing any statistical analyses using the data, scores were checked for outliers. This was important because outliers potentially bias the mean and inflate the standard deviation (Field & Hole, 2003). All difference scores were converted into \(z\) scores in order to standardize the data set. Field (2005) recommends this approach because it represents scores in terms of a distribution that has a known mean and standard deviation, regardless of what the original values were. Accordingly, in a normal distribution it would be anticipated that approximately 5\% of absolute values would be greater than 1.96, 1\% to be above 2.58, and none to be more than 3.29. Table 7 shows the distribution of standardized scores following the above criteria. This confirms that no values are greater than \(±3.29\), indicating the absence of significant outliers.

**Table 7.** The distribution of standardized difference scores for each outcome variable

<table>
<thead>
<tr>
<th>Measure (Difference score)</th>
<th>N</th>
<th>No. Scores &gt; ±1.96 (%)</th>
<th>No. Scores &gt; ±2.58 (%)</th>
<th>No. Scores &gt; ±3.29 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance of Group Memberships</td>
<td>51</td>
<td>3 (5.88)</td>
<td>1 (1.96)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Personal Identity</td>
<td>53</td>
<td>1 (1.89)</td>
<td>2 (3.77)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>ACE-R Memory</td>
<td>58</td>
<td>3 (5.17)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>ACE-R Total</td>
<td>54</td>
<td>3 (5.56)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>HADS Depression</td>
<td>55</td>
<td>4 (7.27)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>HADS Anxiety</td>
<td>55</td>
<td>1 (1.82)</td>
<td>2 (3.64)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>QOL-AD</td>
<td>55</td>
<td>2 (3.64)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>381</td>
<td>17 (4.46)</td>
<td>5 (1.31)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

\(^{13}\) All of the approaches to data management described in this section were conducted using difference scores. These were calculated by deducting a participant’s posttest score from his or her pretest score for each dependent variable.
2. Interdependence of Groups

The problem of statistical interdependence has been highlighted by Anderson and Ager (1978). This concerns small group research whereby dependent variables are derived from individual member responses, but individuals are nested within groups, and groups are nested within treatments. Essentially, the small groups that participants are allocated to by the experimenter represent a factor nested under the treatments factor. In the case of the present study, for instance, there were eight small groups who received a reminiscence intervention and seven small groups who received a skittles intervention. McGarty and Smithson (2005) note that often the problem of interdependence is ignored by researchers, with potential consequences for the statistical inferences made by a study.

Anderson and Ager (1978) argue that it is inappropriate to examine the main effect of treatment condition on the dependent variable without first conducting preliminary tests of the significance of the nested group effect. The practice of administering treatments to entire groups is potentially problematic insofar as it fails to ensure that the responses of members of each treatment condition are truly independent (i.e. the responses of each participant are unaffected by the responses of other participants in the same group). Conducting a hierarchically nested ANOVA allows for an assessment of whether the nested effect qualified the main effect of treatment. This is checked by examining the group x treatment interaction term. If there is a significant interaction term, it suggests that groups behaved in different ways as a function of the intervention. This would point towards using the group as the appropriate unit of analysis, as
opposed to individual member responses. However, the power of this type of test to reveal an effect for treatment is dramatically reduced because of the resultant loss of degrees of freedom.

Anderson and Ager (1978) suggest setting a high significance level (i.e. $p > .25$) to test for interdependence. Non-interdependence is therefore indicated only if the effect is highly non-significant. If there is a non-significant effect for the nested factor then it is satisfactory to assume that there is no interdependence and use individual member responses to test the effect of treatment condition. It is expected that this approach reduces the probability of type II errors, because the number of data points reflects the number of individual participants and not the number of small groups (i.e., a large number of degrees of freedom).

A hierarchically nested ANOVA was conducted using small group and treatment condition as factors. The output of this preliminary test, shown in Table 2, indicates a significant interaction for Multiple Group Memberships ($F(11, 41) = 1.60, p = .14$), New Group Memberships ($F(11, 36) = 1.86, p = .08$), and Continuity ($F(11, 41) = 1.67, p = .12$). The interaction terms for Maintenance of Group Memberships and Personal Identity were marginally significant ($p = .23$ and $p = .22$ respectively). However, as this test applies such an extraordinarily high cut-off, it was decided that these two variables reached a satisfactory level of non-significance, and have therefore been included in the final analysis.
Table 8. Output of the hierarchically nested ANOVA for the interaction between group and treatment (by outcome measure), showing $F$ and significance level

<table>
<thead>
<tr>
<th>Measure (Difference score)</th>
<th>$F$</th>
<th>Sig. (Group x Treatment)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Group Memberships</td>
<td>1.60</td>
<td>.135*</td>
</tr>
<tr>
<td>Maintenance of Group Memberships</td>
<td>1.36</td>
<td>.229*</td>
</tr>
<tr>
<td>New Group Memberships</td>
<td>1.86</td>
<td>.080*</td>
</tr>
<tr>
<td>Continuity</td>
<td>1.67</td>
<td>.115*</td>
</tr>
<tr>
<td>Personal Identity</td>
<td>1.38</td>
<td>.218*</td>
</tr>
<tr>
<td>ACE-R Memory</td>
<td>1.09</td>
<td>.389</td>
</tr>
<tr>
<td>ACE-R Total</td>
<td>1.35</td>
<td>.236</td>
</tr>
<tr>
<td>HADS Depression</td>
<td>0.44</td>
<td>.927</td>
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<tr>
<td>HADS Anxiety</td>
<td>0.34</td>
<td>.970</td>
</tr>
<tr>
<td>QOL-AD</td>
<td>1.03</td>
<td>.442</td>
</tr>
</tbody>
</table>

* $p < .25$

3. Tests of Parametric Assumptions. The Shapiro-Wilk test was used to test the assumption that difference scores were normally distributed, as recommended by Field (2005). As the analysis strategy planned to compare group reminiscence to group skittles across a range of variables, normality checks were conducted at each level of treatment. The outcomes of Shapiro-Wilk tests are shown in Table 9.
Table 9. Outcome of Shapiro-Wilk test of normality for difference scores

<table>
<thead>
<tr>
<th>Measure (Difference score)</th>
<th>Treatment Condition</th>
<th>Shapiro-Wilk Statistic (D)</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance of Group Memberships</td>
<td>Reminiscence</td>
<td>.944</td>
<td>31</td>
<td>.109</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>.891</td>
<td>20</td>
<td>.028*</td>
</tr>
<tr>
<td>Personal Identity</td>
<td>Reminiscence</td>
<td>.935</td>
<td>32</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>.917</td>
<td>21</td>
<td>.076</td>
</tr>
<tr>
<td>ACE-R Memory</td>
<td>Reminiscence</td>
<td>.968</td>
<td>34</td>
<td>.399</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>.948</td>
<td>24</td>
<td>.243</td>
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<tr>
<td>ACE-R Total</td>
<td>Reminiscence</td>
<td>.982</td>
<td>31</td>
<td>.866</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>.940</td>
<td>23</td>
<td>.180</td>
</tr>
<tr>
<td>HADS Depression</td>
<td>Reminiscence</td>
<td>.953</td>
<td>33</td>
<td>.158</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>.962</td>
<td>22</td>
<td>.538</td>
</tr>
<tr>
<td>HADS Anxiety</td>
<td>Reminiscence</td>
<td>.959</td>
<td>33</td>
<td>.242</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>.973</td>
<td>22</td>
<td>.776</td>
</tr>
<tr>
<td>QOL-AD</td>
<td>Reminiscence</td>
<td>.961</td>
<td>33</td>
<td>.273</td>
</tr>
<tr>
<td></td>
<td>Skittles</td>
<td>.961</td>
<td>22</td>
<td>.506</td>
</tr>
</tbody>
</table>

* p ≤ .05; ** p ≤ .01; *** p ≤ .001

This indicated that the group skittles data for Maintenance of Group Memberships was significantly non-normal ($D(20) = .89, p = .028$). Next, the Levene’s test was used to check the assumption of homogeneity of variance, and the results are presented in Table 10.
Table 10. Outcome of Levene’s test for homogeneity of variance for difference scores

<table>
<thead>
<tr>
<th>Measure (Difference score)</th>
<th>Levene Statistic (Based on Mean)</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
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<tbody>
<tr>
<td>Maintenance of Group Memberships</td>
<td>3.241</td>
<td>1</td>
<td>49</td>
<td>.078</td>
</tr>
<tr>
<td>Personal Identity</td>
<td>0.463</td>
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<td>51</td>
<td>.499</td>
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<tr>
<td>ACE-R Memory</td>
<td>0.003</td>
<td>1</td>
<td>56</td>
<td>.957</td>
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<tr>
<td>ACE-R Total</td>
<td>0.354</td>
<td>1</td>
<td>52</td>
<td>.555</td>
</tr>
<tr>
<td>HADS Depression</td>
<td>0.048</td>
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<td>53</td>
<td>.827</td>
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<td>HADS Anxiety</td>
<td>2.183</td>
<td>1</td>
<td>53</td>
<td>.145</td>
</tr>
<tr>
<td>QOL-AD</td>
<td>0.434</td>
<td>1</td>
<td>53</td>
<td>.513</td>
</tr>
</tbody>
</table>

* p ≤ .05; ** p ≤ .01; *** p ≤ .001

The Levene’s test indicated that the difference score data for all of the outcome measures met the assumption of homogeneity of variance.

In order to try and conform to the assumptions of parametric tests, and correct for problems in the distribution of scores, data transformations were attempted for Maintenance of Group Memberships. Square root, logarithm and reciprocal transformations were each applied in turn and the Shapiro-Wilk test and Levene’s test were repeated to check for normality and homogeneity of variance. However, the data for this outcome variable did not conform to the assumptions of parametric tests after transformation. Maintenance of Group Memberships was therefore analysed using a non-parametric test of difference, the Mann-Whitney U.
4. Preliminary Tests of RBANS Measure

This section outlines the preliminary analyses carried out on the data derived from the RBANS Story Memory subtest (single trial) and story recognition measure. The analyses indicated that these measures were not sensitive enough to the ability level of the sample. For this reason, the data has been excluded from the final analysis.

a. Immediate Recall (RBANS Story Memory, single trial)

The range of possible scores on this measure is 0-12. The mean average scores are presented in Table 11.

### Table 11. RBANS Story Recall mean scores (and standard deviation)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Reminiscence</td>
<td>0.79 (1.86)</td>
<td>1.88 (2.65)</td>
</tr>
<tr>
<td>Group Skittles</td>
<td>1.54 (2.02)</td>
<td>1.58 (2.00)</td>
</tr>
<tr>
<td>Combined</td>
<td>1.10 (1.94)</td>
<td>1.75 (2.39)</td>
</tr>
</tbody>
</table>

Frequency data showed that for intervention and control conditions combined, 69% of participants failed to recall a single item at pretest and 45.61% failed to recall a single item at posttest. This reflected a highly uneven distribution of scores with a large proportion of data points at floor, as represented in Figure 3 and Figure 4. This reflects the likelihood that the test was too difficult for participants. It therefore lacked sensitivity, and a decision was made not to pursue further analysis using the data.
Figure 3. Histogram representing the distribution of pretest scores on the RBANS Story recall measure (treatment groups combined)

Figure 4. Histogram representing the distribution of posttest scores on the RBANS Story recall measure (treatment groups combined)
b. *Recognition Item*

The range of possible scores on this measure was 0-8. Descriptive statistics have been presented in Table 12. Given that it was a two-alternative forced-choice task, chance predicts that random guessing would result in a score of four correct responses out of eight (i.e. 50%).

**Table 12.** RBANS Story Recognition mean scores (and SD)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Pretest Mean Score</th>
<th>Posttest Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Reminiscence</td>
<td>4.47 (2.73)</td>
<td>4.48 (2.92)</td>
</tr>
<tr>
<td>Group Skittles</td>
<td>4.48 (1.78)</td>
<td>4.68 (2.30)</td>
</tr>
<tr>
<td>Combined</td>
<td>4.47 (2.39)</td>
<td>4.56 (2.67)</td>
</tr>
</tbody>
</table>

A one-sample *t*-test using a specified constant of four was conducted to explore whether average scores were significantly different from chance expectations. For reminiscence and skittles combined, there was no difference between pretest recognition scores (*M* = 4.47, *SD* = 2.39) and chance expectation, *t*(54) = 1.46, *p* = .14, two-tailed. Likewise, there was no difference between recognition scores (*M* = 4.56, *SD* = 2.67) and chance expectation at posttest, *t*(54) = 1.57, *p* = .12, two-tailed. This strongly suggested that the measure lacked adequate sensitivity, and a decision was made to exclude it from the final analysis.
5. References (Extended Results Appendix)


Appendix 4
(Dissemination Plan)

It is anticipated that the results of the study will be disseminated in the following ways:

- The findings of the study will be presented to an audience of fellow third year trainee clinical psychologists and members of the DClinPsy programme team in Exeter on 19\(^{th}\) May 2008.

- A further presentation of the study will be delivered at the First Meeting of the Federation of the European Societies of Neuropsychology (ESN), at the Cognitive Rehabilitation Symposia between 2\(^{nd}\) and 5\(^{th}\) September 2008, in Edinburgh.

- For wider dissemination of the study findings to the research and scientific community a paper will be prepared and submitted to The Journal of the International Neuropsychological Society (JINS).

- A summary of the study outcomes to be circulated in the Skills for Care South West Bulletin\(^{14}\) (see http://www.skillsforcaresw.org.uk). This will increase awareness of the study within the regional care community.

\(^{14}\) Skills for Care is a not-for-profit organisation contributing towards the improvement of social care through workforce development activities and training across England. Its regional Committees (e.g. Skills for Care South West) act as brokers for funding of workforce development and training in their region.
• The Somerset Care Dementia Care Workshop is planned for 13th May 2008. This will be an opportunity for members of the project team to communicate the main outcomes and discuss their implications for the use of reminiscence within the company’s care homes. It is hoped that managers will be involved in planning the provision of feedback to residents who were participants in the study. Coffee mornings are one option given their success during recruitment.

• Possible presentation of the project at the Somerset Care Ltd. annual conference.

• Feedback given to managers of Cornwall Care on 30th November 2007 and 18th March 2008 by members of the IPSIS team.

• Research findings to be communicated with volunteers from the Dorset Memory Box Library, possible meeting and/or written report.
Appendix 5

(Instructions for Authors)

Journal of the International Neuropsychological Society

Aims and Scope:
The *Journal of the International Neuropsychological Society* welcomes original, creative, high quality research papers covering all areas of neuropsychology. The focus of articles may be primarily experimental, more applied or clinical. Contributions will broadly reflect the interest of all areas of neuropsychology, including but not limited to: development of cognitive processes, brain-behaviour relationships, adult and paediatric neuropsychology, neurobehavioural *Journal of the International Neuropsychological Society* syndromes, such as aphasia or apraxia, and the interfaces of neuropsychology with related areas such as behavioural neurology, neuropsychiatry, and cognitive neuroscience. Papers that utilize behavioural, neuroimaging, and electrophysiology measures are appropriate. Book reviews will also be published.

To assure maximum flexibility and to promote diverse mechanisms of scholarly communication, the following formats are available in addition to *Regular Research Articles: Brief Communications* are shorter research articles; *Rapid Communications* are intended for “fast breaking” new work, that does not yet justify a full length articles, and which are put on a fast review track; *Neurobehavioural Grand Rounds* are unique case studies, which are published in tandem with an introduction in the field to put the case into a more global perspective; *Critical
Reviews are thoughtful considerations of topics of importance to neuropsychology, including associated areas, such as functional brain imaging, neuroepidemiology, and ethical issues; Dialogues provide a forum for publishing two distinct positions on controversial issues in a point-counterpoint form; Symposia consist of several research articles that are thematically linked; Letters to the Editor respond to recent articles in the Journal of the International Neuropsychological Society; and Book Reviews.

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**Book Reviews:** Approximately 1,000 words.

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