Efficacy of integrated interventions combining psychiatric care and nursing home care for nursing home residents: a review of the literature

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Background: Nursing home residents needing both psychiatric care and nursing home care for either somatic illness or dementia combined with psychiatric disorders or severe behavioural problems are referred to as Double Care Demanding patients, or DCD patients. Integrated models of care seem to be necessary in order to improve the well-being of these residents.

Objectives: Two research questions were addressed. First, which integrated interventions combining both psychiatric care and nursing home care in DCD nursing home residents are described in the research literature? And second, which outcomes of integrated interventions combining both psychiatric care and nursing home care in DCD nursing home residents are reported in the literature?

Method: A critical review of studies was done that involved integrated interventions combining both psychiatric care and nursing home care on psychiatric disorders and severe behavioural problems in nursing home patients. A systematic literature search was performed in a number of international databases.

Results: Eight intervention trials, including four RCTs (2b level of evidence), were identified as relevant studies for the purpose of this review. Seven studies, three of which were RCTs, showed beneficial effects of a comprehensive, integrated multidisciplinary approach combining medical, psychiatric and nursing interventions on severe behavioural problems in DCD nursing home patients.

Conclusions: Important elements of a successful treatment strategy for DCD nursing home patients include a thorough assessment of psychiatric, medical and environmental causes as well as programmes for teaching behavioural management skills to nurses. DCD nursing home patients were found to benefit from short-term mental hospital admission.

This review underlines the need for more rigorously designed studies to assess the effects of a comprehensive, integrated multidisciplinary approach towards DCD nursing home residents. Copyright © 2009 John Wiley & Sons, Ltd.

Key words: geriatric psychiatry; nursing home; problem behaviour; multidisciplinary intervention

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Introduction

In line with the current trend to keep frail elderly people at home as long as possible, only elderly people with very complex care demands are admitted to nursing home facilities. Consequently, nursing homes are confronted with a growing number of older residents with somatic illness or dementia on one hand and psychiatric disorders or severe behavioural problems on the other. Serious medical and psychiatric illnesses frequently coalesce in this patient group, blurring the boundaries of psychiatry and somatic medicine.
Numerous studies have shown a high prevalence of psychiatric co-morbidity in these elderly subjects (Brodaty et al., 2001; Conn & Thorpe, 2007; Jongenelis et al., 2004; Llewellyn-Jones et al., 1999; Smalbrugge et al., 2006; Zuiderma et al., 2007). Residents needing both psychiatric care and nursing home care for either somatic illness or dementia combined with psychiatric disorders or severe behavioural problems are referred to as Double Care Demanding (DCD) patients (Bleeker, 1991; Dorland, 2007). A recent survey among Dutch nursing homes showed that 8.4% of all patients residing in a nursing home could be qualified as DCD patients (Dorland, 2007). Collaborative approaches to psychiatry and somatic medicine are therefore important in the treatment of these complex patients (Held et al., 1984; Inventor et al., 2005).

Although well-designed health economy studies on the cost of DCD patients are rare, additional costs are very likely to be incurred, as a higher level of treatment, support and care is required for these patients (Murman et al., 2002; O’Brien and Caro, 2001). Psychiatric symptoms in these DCD patients lower the residents’ quality of life, increase the risk of impaired self-care, which subsequently increases the burden of formal care and thus the costs of caring (Murman et al., 2002; Wancata et al., 2003). Additionally, severe behavioural problems are associated with indirect costs because they lead to an increase in the burden on professional caregivers and have an impact on their personal health (Eriksen, 2006; Eriksen et al., 2006; Evers et al., 2002).

The number of studies on the efficacy of non-pharmacological interventions for the management of severe behavioural problems in nursing home patients is growing. Most of these studies, however, focus primarily on dementia patients (Allen-Burge et al., 1999; Ayalon et al., 2006; Beck et al., 2002; Bharani and Snowden, 2005; Cohen-Mansfield, 2001; Cohen-Mansfield et al., 2007; Landreville et al., 1998; Livingston et al., 2005; Ryu et al., 2005; Spira and Edelstein, 2006). An empirical exploration shows that frail elderly psychogeriatric patients with functional psychiatric pathology can be successfully reactivated (Bakker et al., 2001). A review of controlled trials of psychotherapy in long-term care facilities reported improvements in one or more dimensions of psychological well-being in half of the studies (Bharucha et al., 2006). Psychiatric hospitalization has been shown to offer effective and efficient treatment for both behavioural disturbances in patients with Alzheimer’s disease as well as for depressive disorders in elderly subjects with co-morbid medical conditions (Mintzer et al., 1997; Stevenson et al., 2005; Zubenko et al., 1994; Zubenko et al., 1992).

Psychiatric care is hardly ever available for DCD patients in nursing homes. Fewer than 20% of these patients receive treatment from a mental health clinician (Dorland, 2007; Shea et al., 1994). Several studies criticize the way in which mental health services are being provided to nursing homes. They state that the least effective model is the traditional consultation liaison service in which a psychiatrist provides a one-time consultation on an as needed basis (Bartels et al., 2002; Goldman and Klugman, 1990; Lippert et al., 1990; Reichman et al., 1998; Sakauye and Camp, 1992; Smith, 2003). Even though the majority of the nursing homes have some sort of collaboration with a regional Mental Health service, in practice the mental health care that is provided is still mostly limited to the prescription of medication by a consulting psychiatrist, and, according to nursing home staff, does not cover DCD patients’ needs adequately (Craig and Pham, 2006; Dorland, 2007; Meesters, 2002; Reichman et al., 1998).

This means that more comprehensive and more integrated models that make adequate psychiatric care available in nursing home settings as well are needed in order to improve the quality of care of DCD nursing home patients and to tackle nursing home staff’s problems in dealing with this difficult patient group. Optimal services should be multidisciplinary, multi-dimensional and structural, addressing neuropsychiatric, medical, psychosocial, environmental and staff issues (Bartels et al., 2002; Draper et al., 1998).

Two questions will be addressed in this study. First, which integrated interventions combining both psychiatric care and nursing home care in DCD nursing home residents are described in the research literature? And second, which effects of these integrated models combining both psychiatric care and nursing home care in DCD nursing home residents are reported in the literature?

**Methods**

**Search strategy**

We conducted a systematic literature search in Medline, PsychInfo and Pubmed to identify articles published in medical journals (up until January 2008) reporting on research regarding comprehensive or integrative interventions combining both psychiatric care and nursing home care for DCD patients. An advanced search was performed using the Medical Subject Headings ‘Residential care’, ‘Nursing Homes’, ‘Long Term Care’, ‘(Geriatric) Psychiatry’, ‘Mental
Disorders’, ‘Agitation’, ‘Hospitalization’, ‘Psychotherapy’ and ‘Mental Health Services’. Furthermore the free text words ‘Dementia’, ‘Behaviour’, ‘Intervention’, ‘Multidisciplin’*, ‘Interdisciplinary’*, ‘Integrated’ and ‘Comprehensive’ were used to include those subjects relevant to our study. Results were limited to studies that were comparative, published in English or Dutch, described subjects aged 55 years or older and included an abstract. Moreover, we manually searched the reference lists of included studies to identify any relevant studies that had not yet been included.

Before reviewing the abstracts, criteria were established to determine whether a study was relevant for the purpose of our review. Abstracts were included if they met all of the following criteria:

1. A study population of nursing home patients suffering from either somatic illness or dementia combined with psychiatric disorders or severe behavioural problems.
2. Studies using an inpatient intervention combining both psychiatric care and nursing home care.
3. Studies yielding quantitative data of a comprehensive intervention combining both psychiatric care and nursing home care.

Selection of studies

Figure 1 shows the process of inclusion and exclusion of articles. The computerized, indexed search eventually resulted in a total of 170 articles. A total of 57 duplicates were excluded. Two reviewers (JC and JS) independently assessed the relevance of the remaining 113 articles by reading the abstracts. They selected those abstracts for which full paper retrieval was appropriate. Disagreement between reviewers about whether to include a particular study was resolved by discussion. Eventually both reviewers excluded 62 studies as non-relevant, following the algorithm of inclusion. The main reasons for the exclusion of studies were that care was given to DCD patients living at home; the study was a programme description and was designed as a review. One reviewer (JC) read all the remaining 51 articles in full, while the second reviewer (JS) read a random sample of 24 articles. To increase the objectivity and consistency of the decision to include or exclude a paper based on reading the full text, a data-extraction form was developed. Besides being used for selection, this form was used to score all relevant items with regard to study characteristics, composition of the teams, diagnostic assessments, results and conclusions. Studies were excluded if, in spite of the keywords, the study did not relate to an intervention that combined both psychiatric care and nursing home care. After excluding the irrelevant studies, seven studies remained. A manual search of the references for these studies yielded one additional study for inclusion, so a total of eight studies were included for further review.

Methodological quality

The methodological quality of the included studies was assessed and reported in accordance with the guidelines of the Dutch Institute for Health Care Improvement (CBO). With regard to experimental studies they recommend an evaluation of selection bias, performance bias, detection bias and attrition bias. Each source
of potential bias was assessed with respect to the following quality elements: randomization, allocation concealment, baseline comparability, blinding of participants or providers, blinding of outcome assessors, reporting of attrition rate, the use of intent-to-treat analyses and the use of validated tools. With regard to observational studies they recommend an evaluation of definition of the study population, selection bias, follow-up/ completeness of dataset, confounders, blinded outcome assessments and reliable results (www.cbo.nl).

Data extraction

Data extracted from the included studies comprised: a description of methods used, the participants, the intervention and its characteristics, the measured outcomes and the methodological quality. Because the studies were expected to be heterogeneous with respect to methods, participants and interventions, they were qualitatively described in detail. The results on methodological quality of the included observational and experimental studies are presented in Table 1, while the other main characteristics of all the selected studies, together with level of evidence are presented chronologically in Table 2.

Results

Study characteristics

Eight studies were identified as relevant for the purpose of this review: Kunik et al., 1996; Rovner et al., 1996; Holm et al., 1999; Proctor et al., 1999; Wiener et al., 2001; Opie et al., 2002; DeYoung et al., 2002; Brodaty et al., 2003 (Table 2). The selected studies consisted of one retrospective cohort study (3 level of evidence), three prospective case series (3 level of evidence) and four randomized controlled trials (2b level of evidence). The effects of comprehensive intervention on severe problem behaviour in DCD nursing home patients were measured in all the studies. Follow-up periods ranged from seven days to six months. The studies were predominantly conducted in the United States (n = 5). Although the populations of all the included studies consisted of DCD nursing home patients, the interventions of three studies took place within a psychiatric or other hospital. In one study, subjects were hospitalized for the duration of their treatment and afterwards followed up within the nursing home. Although most study samples comprised DCD patients with a diagnosis of dementia (n = 5), three studies included both DCD patients with a primary somatic condition as well as DCD patients with a diagnosis of dementia. There was an average of three co-morbid somatic diseases, with diabetes, cerebrovascular diseases and cardiovascular diseases most present (Holm et al., 1999; Kunik et al., 1996; Rovner et al., 1996).

Participants varied from 70.6 ± 6.1 to 82.9 ± 8.9 years of age. With one exception (Kunik et al., 1996), all the studies consisted of a mixture of female and male subjects. The proportion of female participants varied from 33 to 86%. The sample sizes of the studies ranged from 15 to 164.

To be included in the hospital programmes, the nursing home patients’ problem behaviour had to be unable to be successfully treated within the nursing
<table>
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<tr>
<th>Study</th>
<th>Level of Evidence</th>
<th>Design</th>
<th>Participants</th>
<th>Setting</th>
<th>Intervention</th>
<th>Instruments</th>
<th>Outcomes</th>
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<tr>
<td>Kunik et al. 1996</td>
<td>3</td>
<td>Retrospective cohort, based on ongoing database effort</td>
<td>Country: USA Number: 41 DCD, 22 somatic illness &amp; psychiatric disorder 19 dementia Mean age: 70.6 ± 6.1, 100% male Referral: physician of nursing home</td>
<td>Geropsychiatric inpatient unit of a Veterans Affairs medical hospital</td>
<td>Comprehensive evaluation by a multidisciplinary team, followed by multidisciplinary treatment, including pharmacotherapy, individual, family and group therapies.</td>
<td>HRS-DHAM-D BPRS CMAI RSSE GAF</td>
<td>Decrease in violence, psychosis and depression increase in Global functioning. No difference between the two groups of DCD nursing home patients</td>
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<td>Rovner et al. 1996</td>
<td>2b</td>
<td>Randomized Controlled Trial</td>
<td>Follow-up 6 months Country: USA Number: 81 DCD with dementia and somatic illness, 42 IG 39 CG Mean age: IG 82.0 ± 8.0, 79% female Mean age CG 81.2 ± 7.2, 76% female Referral: research nurse</td>
<td>Nursing home, with 250 beds, divided over 6 nursing units. Intervention patients continued to reside in their usual room, but were moved during the day to an activities room</td>
<td>Combination of activity programme (applied by a creative arts therapist and two nursing aids) on weekdays from 10 AM to 3 PM, psychotropic drug management and weekly educational meetings with a psychiatrist.</td>
<td>MMSE CMAI PGDRS DSM-III-R RUGS</td>
<td>Significant decrease of behaviour disorders, restraint use and antipsychotic use in intervention group</td>
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<td>Holm et al. 1999</td>
<td>3</td>
<td>1 year prospective collected data Follow-up 7–152 days (median 25 days)</td>
<td>Country: USA Number: 164 DCD with dementia &amp; somatic illness 30% depression 25% psychosis 20% bipolar Mean age: 81 ± 8, 45% male, 55% female Referral: screening by registered nurse following admission criteria</td>
<td>Special inpatient unit of 16 beds in general hospital, with audiovisual equipment in each room</td>
<td>Individualized treatment plan, based on repeated multidisciplinary assessments. Pharmacotherapy is used to treat diagnosable psychiatric conditions. Specific activities and tasks are designed for each patient. Treatment also includes individual or group sessions with a psychologist and/or occupational therapist.</td>
<td>ACL RAGE FIM</td>
<td>79–92% improvement on behaviour, cognition and Activities of Daily Living</td>
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<tr>
<td>Proctor et al. 1999</td>
<td>2b</td>
<td>Randomized Controlled Trial</td>
<td>Follow-up 6 months Country: United Kingdom Number: 105 DCD with dementia 54 IG 51 CG Mean age IG: 83.4 ± 5.5, 79% female Mean age CG:82.7 ± 9.1, 86% female Referral: care staff</td>
<td>10 residential homes and 2 nursing homes, paired according to size</td>
<td>Training and education intervention, in which all staff followed seminars, given by old-age psychiatric hospital outreach team and an experienced psychiatric nurse visits weekly to give advice and support to individual workers.</td>
<td>AGE CAT organic AGE CAT depression Chrichton scale Barthel index</td>
<td>Significant improved scores for depression and cognition</td>
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<td>Wiener et al. 2001</td>
<td>3</td>
<td>Case series Follow-up at 10 weeks in nursing home, after median stay of 15 days in hospital</td>
<td>Country: USA Number: 15 DCD with dementia Mean age 79 ± 9, 67% male, 33% female Referral: nursing home</td>
<td>Geriatric psychiatry unit of a psychiatric university hospital</td>
<td>Person centred programme to evaluate contribution to agitation, initiate pharmacological treatment and identify behavioural and social interventions that can be implemented in the nursing home after discharge. Aftercare through consultation for nursing home staff.</td>
<td>BARS CMAI NHSA AIMS GAF DSM-IV</td>
<td>Improvement in Global functioning and decrease in agitation. At follow-up in Nursing Home after 10 weeks still detectable; 60% in severity and 75% in frequency of behaviour</td>
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<td>Opie et al., 2002</td>
<td>2b</td>
<td>Randomized Controlled Trial</td>
<td>Country: Australia Number: 99 DCD with dementia, 48 early intervention (EG)</td>
<td>Nursing homes</td>
<td>Individually tailored medical, pharmacological, psychosocial and nursing interventions, targeting specific behaviours. In a 4-week period a multidisciplinary consultancy team supplies detailed behaviour plans to staff</td>
<td>MMSE CMAI BAIGS GDS</td>
<td>Decrease in restlessness, physical aggression and verbal disruption, at follow-up after 1 month in 75% still detectable</td>
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<td>DeYoung et al. 2002</td>
<td>3</td>
<td>One-group time series, quasi-experimental</td>
<td>Country: USA Number: 32 DCD with dementia (87% also with medical diagnosis)</td>
<td>Special 32-bed unit in a Long-term Care setting, including an environment with controlled temperature, sound and lighting.</td>
<td>A totally structured psychosocial activity programme during morning, afternoon and evening, 7 days a week, including rehabilitative therapies and counselling services. Programme is executed by especially trained staff. Follow-up services to nursing home are provided.</td>
<td>NHBPS CMAI</td>
<td>Reduction of number of Aggressive, Agitated or Disrupted behaviour</td>
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<td>Birdaty et al., 2003</td>
<td>2b</td>
<td>Randomized Controlled Trial</td>
<td>Country: Australia Number: 86 DCD with dementia 34 depression &amp; psychosis 19 psychosis Mean age 82.9 ± 8.9, 72% female</td>
<td>Nursing homes</td>
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<td>Opie et al., 2002</td>
<td>2b</td>
<td>Randomized Controlled Trial</td>
<td>Follow-up 8 weeks</td>
<td>Australia Number: 99 DCD with dementia, 48 early intervention (EG) 51 late intervention (LG)</td>
<td>Nursing homes</td>
<td>Individually tailored medical, pharmacological, psychosocial and nursing interventions, targeting specific behaviours. In a 4-week period a multidisciplinary consultancy team supplies detailed behaviour plans to staff</td>
<td>MMSE CMAI BAIGS GDS</td>
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<td>DeYoung et al. 2002</td>
<td>3</td>
<td>One-group time series, quasi-experimental</td>
<td>Follow-up at 3 months (n = 32) and 6 months (n = 19)</td>
<td>USA Number: 32 DCD with dementia (87% also with medical diagnosis) Mean age 73 ± 21, 53% female</td>
<td>Special 32-bed unit in a Long-term Care setting, including an environment with controlled temperature, sound and lighting.</td>
<td>A totally structured psychosocial activity programme during morning, afternoon and evening, 7 days a week, including rehabilitative therapies and counselling services. Programme is executed by especially trained staff. Follow-up services to nursing home are provided.</td>
<td>NHBPS CMAI</td>
</tr>
<tr>
<td>Birdaty et al., 2003</td>
<td>2b</td>
<td>Randomized Controlled Trial</td>
<td>Follow-up 24 weeks</td>
<td>Australia Number: 86 DCD with dementia 34 depression 33 depression &amp; psychosis 19 psychosis Mean age 82.9 ± 8.9, 72% female</td>
<td>Nursing homes</td>
<td>Individually tailored medical, pharmacological, psychosocial and nursing interventions, targeting specific behaviours. In a 4-week period a multidisciplinary consultancy team supplies detailed behaviour plans to staff</td>
<td>AMTS BEHAVE-AD EBAS-DEP FAST CSD NPI SAPS GDS CRI HRS-DHAM-D ORS DSM-IV</td>
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**Level of Evidence:** According to the Centre for Evidence Based Medicine, University of Oxford 2001; www.cebm.net and The Dutch Institute for Healthcare Improvement (CBO); www.CBO.nl.

**Participants:** USA = United States of America, DCD = double care demanding patients, IG = intervention group, CG = control group.

**Intervention:** AM = Ante Meridian, PM = Post Meridian, NH-staff = nursing home staff.

**Instruments:** MMSE = Mini-Mental State Examination, HRS-D/HAM-D = Hamilton Depression Rating Scale, BPRS = Brief Psychiatric Rating Scale, CMAI = Cohen-Mansfield Agitation Inventory, RSSE = Rating Scale for Side Effects, GAF = Global Assessment of Functioning, PGDRS = Psychogeriatric Dependency Rating Scale, DSM = Diagnostic and Statistical Manual of Mental Disorders (III-R = third edition revised, IV = fourth edition), RUGS = Resource Utilization Groups, ACL = Allen Cognitive Level test, RAGE = Rating Scale or Aggressive Behaviour in the Elderly, FIM = Functional Independence Measure, AGECA-T = Automatic Geriatric Examination for Computer Assisted Taxonomy, Chrichton scale = a behaviour rating scale to assess behavioural characteristics of residents, Barthel index = an activity of daily living index, NHSA = Nursing Home Scale for Agitation, BARS = Brief Agitation Rating Scale, AMS = Abnormal Involuntary Movement Scale, BAGS = Behavioural Assessment Graphical System, GDS = Geriatric Depression Scale, NHBPS = Nursing Home Behaviour Problem Scale, AMTS = Abbreviated Mental Test Score, BEHAVE-AD = Behaviour Pathology in Alzheimer's Disease Rating Scale, EBAS-DEP = Even Briefer Assessment for Depression, FAST = Functional assessment Staging, CSD = Cornell Scale for Depression in Dementia, NPI = Neuro Psychiatric Inventory, SAPS = Scale for the Assessment of Positive symptoms, CRI = Resident Classification Index, CIRS = Cumulative Illness Rating Scale.
home itself and also unable to be treated on an outpatient basis. This problem behaviour had to be threatening and require continuous observation. Problem behaviour was defined as violent behaviour or other disruptive behaviour, psychosis or depression (Holm et al., 1999; Kunik et al., 1996; Wiener et al., 2001). The inclusion criterion for the special care unit programme was a referral from a nursing home or a hospital for untreatable disruptive behaviour that otherwise made referral to a psychiatric hospital necessary (DeYoung et al., 2002). Two out of four randomized controlled studies carried out within the nursing home demanded a DSM-IV diagnosis of dementia and disruptive neuropsychiatric symptoms (psychosis, depression or agitation/aggression) observed several times each day (Brodaty et al., 2003; Opie et al., 2002). One randomized study (Rovner et al., 1996) included, according to the research psychiatrist, participants with a positive diagnosis of dementia (DSM III-R and MMSE) and the presence of disruptive behaviour observed by a research nurse. There was no MMSE cut-off score for eligibility. The fourth randomized study (Proctor et al., 1999) allowed care staff within each of the 12 nursing and residential homes to select the 10 residents who were the most difficult to care for.

Methodological quality

The overall score for the methodological quality of the experimental studies (Table 1) ranged from 5 to 6 (maximum eight). The author of one study (Rovner et al., 1996) reported that outcomes were not assessed blindly, which may be a source of bias. The study with lowest methodological quality used a design in which allocation was not concealed, providers and participants were not blinded and intention-to-treat analyses were not made (Opie et al., 2002). The overall score for methodological quality of the observational studies ranged from 2 to 4 (maximum six). One study showed very low methodological quality, due to selection bias, lack of adequate correction for confounders and non-blinded outcome assessment (Wiener et al., 2001).

Characteristics of interventions

As summarized in Table 3, the teams involved in the interventions comprised at least four disciplines up to a maximum of six disciplines. Certified psychiatric nurses were part of the multidisciplinary team in all of the eight selected studies. In six of the eight selected studies a psychiatrist and a psychologist (sometimes specializing in geriatrics) were part of the multidisciplinary team. A physician was part of the multidisciplinary team in five of the eight selected studies. The physician involved could be a geriatrician, an internist or a general physician.

The multidisciplinary interventions included a comprehensive assessment of the psychiatric disorders or severe behavioural disorders in the DCD nursing home patients. The patients’ history was described in all the studies as part of the assessment procedure, although data collection occurred in different ways. Standardized full physical, psychological and/or neuropsychological and psychiatric examinations were all performed in four studies (Brodaty et al., 2003; Holm et al., 1999; Kunik et al., 1996; Wiener et al., 2001). Three of the four remaining studies used only psychological and/or neuropsychological and psychiatric examinations.
Reported outcomes of interventions

Seven studies reported positive effects on reducing agitation and physical aggression at the last follow-up after the intervention. The two most important outcomes reported were a decrease in the levels of general psychiatric symptoms (especially depression and agitation or aggression) (Brodaty et al., 2003; DeYoung et al., 2002; Holm et al., 1999; Proctor et al., 1999; Wiener et al., 2001; Opie et al., 2002; DeYoung et al., 2002; Brodaty et al., 2003). Individual or group psychotherapy was offered in three studies (Kunik et al., 1996; Holm et al., 1999; Brodaty et al., 2003). DeYoung, Rovner, Brodaty and Proctor provided training and education for nursing staff to ameliorate their understanding of problem behaviour.

services were associated with a decrease in agitated and physical aggressive behaviour and an increase in global functioning among 53–90% of the patients who received these services (DeYoung et al., 2002; Holm et al., 1999; Kunik et al., 1996; Wiener et al., 2001). None of the selected studies reported data on cost effectiveness or on nursing home staff functioning. The intensity of baseline mental health services, received before inclusion in any of the intervention studies, remains unclear.

Discussion

The most striking outcome of our review is that there were only few intervention studies of DCD nursing home patients. Ultimately, we were able to include only eight intervention studies of a comprehensive, integrated multidisciplinary intervention for DCD nursing home patients, of which only four were randomized controlled studies with a 2b level as maximum level of evidence (Brodaty et al., 2003; Opie et al., 2002; Proctor et al., 1999; Rovner et al., 1996). All of these eight studies were aimed at the reduction of severe neuropsychiatric behaviour (psychosis, depression and agitation) in a group of DCD nursing home patients with dementia. Somatic co-morbidity was only clearly stated in one randomized clinical trial (Rovner et al., 1996) and in two uncontrolled studies (Holm et al., 1999; Kunik et al., 1996).

This review shows beneficial effects of a comprehensive, integrated multidisciplinary approach combining medical, psychiatric and nursing interventions on severe behavioural problems in DCD nursing home residents. This comprehensive, integrated multidisciplinary approach can be pursued in either a special unit of a long-term care setting (DeYoung et al., 2002), a nursing home (Brodaty et al., 2003; Opie et al., 2002; Proctor et al., 1999; Rovner et al., 1996) or an inpatient unit of a psychiatric or other hospital (Holm et al., 1999; Kunik et al., 1996; Wiener et al., 2001).

The sustained effects of these multidisciplinary interventions tend to be positive (Opie et al., 2002; Wiener et al., 2001). In contrast, Brodaty found a non-significant difference in favour of the intervention group (Brodaty et al., 2003). His study, however, not only lacked sufficient power, but also used a study design that was considered to be too complex. Opie also recommends the use of a simple study design in the complex area of work within a nursing home. Like Brodaty, she states that their study design was highly complex, derived from the premise that nursing homes would be reluctant to act solely as ‘controls’. In
retrospect, staff was so concerned by residents’ behaviour that allocation to a control group with later access to specialist treatments would certainly have been acceptable (Opie et al., 2002). Short-term psychiatric hospital treatment benefits nursing home residents with and without dementia, who are admitted for severe problem behaviour (Holm et al., 1999; Kunik et al., 1996; Wiener et al., 2001). The used multimodal treatment approach, however, made it impossible to identify the specific therapeutic ingredients responsible for this improvement (Kunik et al., 1996). One explanation for this improvement could be the lack of adequate psychiatric assessment and treatment within the nursing home itself (Kunik et al., 1996). A different explanation could be that treatment decisions within the nursing home may be heavily dependent on observations by staff with varying levels of training and experience (Holm et al., 1999). Draper states in his study that 17% of all nursing home residents referred to a geriatric outreach team in Sydney could only be effectively treated by means of a short admission (of 10–90 days’ duration) to a psychiatric hospital (Draper et al., 1998). However, psychiatric hospitalizations, despite their necessity, have limitations of high cost, short length of stay and the inherent difficulty of treating a behavioural problem outside the nursing home environment. In both inpatient settings (nursing home and psychiatric hospital) a person-centred, intensive intervention is favoured. This is in accordance with the findings of Snowdon in his article on needs and developments of psycho geriatric services in long-term care facilities (Snowdon, 2007).

All the studies included have several methodological shortcomings. In one experimental study the outcomes were not assessed blindly, which may be a source of bias (Rovner et al., 1996). The experimental study with lowest methodological quality used a design in which allocation was not concealed, providers and participants were not blinded and intention-to-treat analyses were not made (Opie et al., 2002). One of the included observational studies showed very low methodological quality, due to selection bias, lack of adequate correction for confounders and non-blinded outcome assessment (Wiener et al., 2001).

In general, sample sizes were small, varying from 15 to 164. The eight studies included differed in their design, in the research instruments used to assess behavioural problems and in patient groups, which presumably had different behavioural problem pathogenesis. Follow-up time was in general short, and sustained effects of the applied intervention were measured in only two studies (Opie et al., 2002; Wiener et al., 2001). The possibility of overlooking relevant studies on integrated interventions for DCD nursing home patients should also be mentioned. Negative results are not always published and results that are regarded as only regionally interesting will not be pushed in scientific journals and might therefore have been unavailable to international readers. Most of the studies included were conducted in the USA, with only one study being performed in Europe (Proctor et al., 1999).

Cultural differences between countries in terms of the presence, the types and preferences of institutional care should be considered. There are substantial differences in the design of organization of long-term care or nursing home care, in reimbursement policies and in the provision of formal and informal care. Employment of different types of physicians and nursing home staff should also be considered. Most nursing homes are irregularly visited by general practitioners, who sometimes collaborate with geriatricians, neurologists or internists. In Europe, Dutch nursing homes are unique in employing their own physicians who have completed a two-year specialist training programme in both geriatric medicine and basic psychiatry training (Schols et al., 2004). Neither cost-effectiveness nor patients’ quality of life was the object of interest in either of the studies included. Distress and job satisfaction may also be a relevant combination of variables to measure in nursing home caregivers to define the effectiveness of a comprehensive intervention for psychiatric problems or severe behavioural problems in DCD nursing home patients.

Although Bartels (Bartels et al., 2002) has suggested that optimal mental health services for nursing home patients should be multidisciplinary, addressing medical, psychiatric, psychosocial, nursing and environmental issues, these findings cannot be completely confirmed by the data available from the randomized controlled trials we included. This means that this review neither clarifies more precisely the best way to handle psychiatric disorders or severe problem behaviour in DCD nursing home patients nor does it give any definite answers to whether multidisciplinary teams involving psychiatrists and psychiatric nurses are essentially superior. The ideal composition of the team is still not well defined, nor is the ideal setting to provide mental health services for nursing home residents with psychiatric disorders or severe problem behaviour. It also stays unclear which interventions have to be integrated and what are the ingredients and context factors that are responsible for the efficacy of the intervention. Many relevant questions remain unanswered. Which competencies are crucial for
nursing home staff? Which interventions are the most cost-effective in dealing with psychiatric problems or severe behaviour disorders in DCD nursing home patients? Is a psychiatric inpatient setting the most efficacious and cost-effective delivery site for treating nursing home residents? Can psychiatric care be provided efficiently within the nursing home? Is a formally organized multidisciplinary intervention team as effective as a group of specially trained nursing home staff collaborating with extrinsic mental health staff? And what will be the effect of lengthening the follow-up period (six to twelve months) for nursing home residents after psychiatric intervention?

Given the current level of concern about DCD nursing home patients and the ever growing number of these patients due to the ageing of the population, it is important that they receive the most effective and efficient care they deserve. More rigorously designed studies must therefore be conducted to assess the effects of a comprehensive multidisciplinary approach towards DCD nursing home patients as well as to assess the best setting in which to provide this approach. These studies must have sufficient power to detect small effects, tailor recommendations to the individual, lengthen the follow-up period and be undertaken across multiple sites. Studies should also focus on identifying those patients who improve and those who do not, to better target individuals for whom more intensive interventions may be warranted. Future studies should involve randomized clinical trials focusing not only on reducing problem behaviour, but also on cost-effectiveness, staff satisfaction and patients’ quality of life.

Key Points

- Residents needing both psychiatric care and nursing home care for either somatic illness or dementia combined with psychiatric disorders or severe behavioural problems are referred to as Double Care Demanding patients, or DCD patients.
- Psychiatric care is hardy available for DCD patients in nursing homes
- A comprehensive, integrated multidisciplinary approach combining medical, psychiatric and nursing interventions shows beneficial effects on severe behavioural problems in DCD nursing home patients
- More rigorously designed randomized clinical trials must be conducted, focusing not only on reducing problem behaviour, but also on cost-effectiveness, staff satisfaction and patients’ quality of life.

REFERENCES


