Characteristics of double care demanding patients in a mental health care setting and a nursing home setting: results from the SpeCIMeN study

Janine Collet, Marjolein E. de Vugt, Frans R. J. Verhey, Noud J. J. A. Engelen, and Jos M. G. A. Schols

Department of Family Medicine/Elderly Care Medicine and Department Health Services Research, School for Public Health and Primary Care (CARPH), Maastricht University, Maastricht, The Netherlands; Department of Psychiatry and Psychology, School of Mental Health and Neuroscience, Maastricht University Medical Centre+, Alzheimer Centre Limburg, Maastricht, The Netherlands; Department of Elderly, Mondriaan Mental Health Care, Heerlen, The Netherlands

ABSTRACT

Background: Older patients suffering from a combination of psychiatric disorders and physical illnesses and/or dementia are called Double Care Demanding patients (DCDs). Special wards for DCDs within Dutch nursing homes (NHs) and mental health care institutions (MHCIs) offer a unique opportunity to obtain insight into the characteristics and needs of this challenging population.

Methods: This observational cross-sectional study collected data from 163 DCDs admitted to either a NH or a MHCI providing specialized care for DCDs. Similarities and differences between both DCD groups are described.

Results: Neuropsychiatric symptoms were highly prevalent in all DCDs but significantly more in MHCIs. Cognitive disorders were far more present in NH-DCDs, while MHC-DCDs often suffered from multiple psychiatric disorders. The severity of comorbidities and care dependency were equally high among all DCDs. NH-DCDs expressed more satisfaction in overall quality of life.

Conclusions: The institutionalized elderly DCD population is very heterogeneous. Specific care arrangements are necessary because the severity of a patient’s physical illness and the level of functional impairment seem to be equally important as the patient’s behavioural, psychiatric and social problems. Further research should assess the adequacy of the setting assignment and the professional skills needed to provide adequate care for elderly DCDs.

Introduction

Due to the ongoing process of deinstitutionalization of psychiatric care services, problems may arise for the most disabled chronic psychiatric patients, who are in need of physical care or even nursing. These patients suffer from multiple disorders and have combined mental (psychiatric and/or psychogeriatric) and physical conditions and are mostly older people. (Grabowski, Aschbrenner, Rome, & Bartels, 2010; Health Council of the Netherlands, 2008; van den Brink, Gerritsen, Ou de Voshaar, & Koopmans, 2013). Among them are chronic psychiatric patients with dementia, but also dementia patients with or without a psychiatric history who were admitted to a psychiatric hospital due to behavioural disturbances that could not be dealt with in a nursing home (NH). Another subgroup consists of younger patients with chronic alcohol abuse, post-traumatic encephalopathies and degenerative diseases of the central nervous system (Bleeker, De Reus, & Duurkoop, 1991). These double care demanding patients (DCDs) need a combination of physical, psychogeriatric and psychogeriatric care (Bartels, 2004; Snowdon, 2010). Up till now, different types of long-term care (LTC) are provided to older people with advanced dementia, disabling psychiatric illnesses and physical disabilities. In the Netherlands, tight networks of regional NHs and regional integrated mental health care institutions (MHCIs) exist. Traditionally, NHs provide LTC for either psychogeriatric or physically disabled patients and MHCIs provide LTC for patients with chronic mental illnesses.

Earlier studies have shown that DCDs benefit from collaborative psychiatric and physical medicine approaches, e.g. from multidisciplinary care teams that deliver integrated mental and physical healthcare (Bartels, 2004; Collet, de Vugt, Verhey, & Schols, 2010; Inventor et al., 2005). The absolute categorization of psychiatric treatment on the one hand and NH care (composed of either physical care or psychogeriatric care) on the other hand creates both regulatory and funding restrictions. Health care insurance companies may not reimburse the costs for physical care within a MHCI and vice versa the costs for psychiatric treatment in a NH. Consequently, both NH-residents with comorbid psychiatric disorders and psychiatric patients with comorbid dementia and/or physical disabilities will not always receive the type of care that they need (Health Council of the Netherlands, 2008; NSW Department of Health, 2006; Snowdon, 2010; van den Brink, Gerritsen, Oude Voshaar, & Koopmans, 2014). Not receiving the most appropriate care can have a negative influence on neuropsychiatric symptoms (NPS) and quality of life (Bakker et al., 2014; Slade, Leese, Cahill, Thornicroft, & Kuipers, 2005; White et al., 1997).

Although the traditional asylum function for older adults with severe mental illness (SMI) has largely been taken over by NHs (Bartels, Miles, Dums, & Levine, 2003), a study by the Dutch Trimbos Institute found that according to NH-personnel, 8.6% of the Dutch NH-residents were DCDs who...
surpassed the capabilities for psychiatric treatment available in their own NH department (Dorland, 2007). Properly trained nurses who are qualified to provide psychiatric care for elderly people are rarely employed within NHs, and specific psychiatric training for personnel is limited (Dutch Health Care Inspectorate, 2007; Grabowski et al., 2010; Molinari et al., 2008). Patients diagnosed with SMI have a high prevalence of physical disorders, are less competent in interpreting physical symptoms and have a reduced life expectancy (Collard, Boter, Schoevers, & Oude Voshaar. 2012; De Hert et al., 2011; Scott & Happell, 2011). The Dutch Inspectorate of Healthcare has stated that Dutch MHCIs continue to display insufficient attention to the somatic needs of DCDs, and official guidelines for how to identify and treat somatic complications are still lacking (Cahn et al., 2008; Dutch Health Care Inspectorate, 2004). DCDs, thus, present a particular challenge to LTC services within both NHs and MHCIs. Some Dutch NHs and MHCIs have already operating special care units for DCDs (DCD-units), offering a unique opportunity to study this population. Knowledge of the characteristics and care needs of DCDs in both settings is essential to improve care services to better meet the specific needs of these DCDs. Although the term DCD-units is used for both settings, it is very likely that DCDs in NHs and MHCIs will differ in psychopathology, physical comorbidity and activities of daily living (ADL) deficits. The present study will explore the similarities and differences of DCDs who are admitted to either NH or MHCI, and addresses the following research questions: what are the physical (in terms of medical problems and care dependency) and mental health-related characteristics (in terms of mental problems and NPS) of these DCDs, and what is their perceived quality of life.

The findings of this study are relevant for planning of services that should take into account different patterns of needs among elderly DCDs.

Methods

Design

This study is a part of an explorative observational cross-sectional study on the Specific Care in the Interface of Mental health and Nursing homes (SpecIMeN). Residents from two types of care settings for DCDs were included in the study: the mental health care setting and the NH setting. Data were collected from November 2013 through April 2015.

Participants

The study was performed in the southernmost part of Limburg, a province of the Netherlands. NH organizations and MHCIs in the region were approached to identify specialized DCD-units based on our definition: specialized units for patients with a combination of psychiatric, physical and/or psychogeriatric care needs. All of these by the organization identified DCD-wards were included in the study with the ward as the unit of interest.

Four specialized DCD-units within a Dutch MHCI (Mondriaan) with a total of 76 beds and seven specialized DCD-units within two Dutch NH organizations (Envidia and Meander) with a total of 110 beds were identified and included in the study. All of the specialized NH-DCD-units were situated within psychogeriatric NHs.

The DCD-units within the MHCI varied from 14 to 20 patients, while the DCD-units within the NHs varied from 8 to 20 patients. DCD patients had to be admitted to the specialized care unit at least six weeks prior to the study before they could be included. Patients who were temporarily admitted to the specific DCD-unit because of admission problems elsewhere in the NH or MHCI were excluded from the study.

Procedure

The local Medical Ethics Committee approved the study (number 134049) and considered it not to be subject to the Medical Research Involving Human Subjects Act. The study was also approved by the Board of Directors and the Client Advisory Councils of the participating institutions. Patient participation was voluntary, and data collection was conducted confidentially and anonymously. Eligible patients were included in the study after informed consent from the patients or their legal representatives was obtained.

Data were collected through various methods. Medical files were intensively studied to collect information on psychiatric and somatic morbidity. Direct patient measurements of cognition, mood disturbances and perceived quality of life were obtained. Finally, the vocational nurses who acted as the primary responsible caretakers of the DCDs provided data on care dependency, current behaviour and personality traits.

Measurements

Data collection from medical files

Baseline characteristics (such as age, sex, marital status, time of institutionalization, level of education and representation) and somatic illnesses were retrieved from the patient’s record.

All current physical disorders were collected from data on the medical diagnosis, the available laboratory results (e.g. in confirming kidney failure) and medication use, as stated within the patients’ medical record. The severity of all confirmed somatic diagnoses was scored using the 14-item version of the Cumulative Illness Rating Scale (CIRS) 14-item version (Miller et al., 1992). This scale measures multimorbidity in light of all medical problems encountered in a geriatric population. The theoretical scores range from 0 to 56 based on scoring the severity of co-occurring medical conditions from 0 (no problem) to 4 (extremely severe problem). In this study, the severity of co-occurring medical conditions was scored excluding the ‘psychiatry’ CIRS-subscale.

Psychiatric illnesses were retrieved from the medical records and classified according to the Diagnostic and Statistical Manual of Mental Disorders. Both axis I and axis II classifications were noted (DSM-IV-TR. Vol. 4th edition, Text Revision. 2000).

Data collection on patient level

Direct measurements. Patient cognition was measured using the Dutch standardized version of the Mini Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975).

Feelings of anxiety and depression were assessed using the Dutch translation of the original Hamilton Anxiety and Depression Scale (HADS) (Spinhoven et al., 1997; Zigmond & Snaith, 1983). The HADS contains a 7-item subscale for depression and for anxiety. Each item has a severity score range from 0 (no problem) to 3 (severe problem). A trained
research assistant interviewed the patients. Items were read out loud, and patients were asked to choose one of the four possible severity scores for each item.

Overall experienced quality of life was assessed using the Manchester Short Assessment of Quality of Life (MANSA). This is an abbreviated 6-item version of the original 16-item scale, as used in the Dutch cumulative needs for care monitor (Drukker et al., 2010; Priebe, Huxley, Knigh, & Evans, 1999). These items address patients’ satisfaction with general quality of life, living situation, social relationships, physical health, psychological health and quality of care. Items are scored on a 7-point Likert scale ranging from 1 (not satisfied) to 7 (very satisfied).

Data provided by vocational nurses
To measure patients’ needs and care dependency, we used the Care Dependency Scale (CDS) (Dijkstra, Buist, & Dassen, 1998; Dijkstra, Tiesinga, Plantinga, Veltman, & Dassen, 2005). The CDS measures to what extent the patient is able to perform activities independently. It consists of 15 categories, all of which are scored using a 5-point Likert-type scale. Responses range from ‘1 = completely dependent’ to ‘5 = almost independent’. Patients with a total CDS score of ≤68 are classified as care dependent.

NPS were assessed using the Dutch version of the Neuropsychiatric Inventory (NPI) (Cummings et al., 1994; Kat et al., 2002). The NPI includes 12 NPS. The frequency and severity of each symptom are rated on a 5-point (0–4) and 4-point (0–3) Likert scale, respectively. The frequency and severity scores are then multiplied. NPI symptoms were considered relevant when the multiplied scores were ≥4. Agitation and aggression were further specified with the Dutch version of the Cohen-Mansfield Agitation Inventory (CMAI-D) (Cohen-Mansfield, 1986; de Jonghe, & Kat, 1996). The CMAI is a 29-item nurse-based rating scale. All of the items are rated on a 7-point scale (1–7 ranging from ‘never’ to ‘several times an hour’.

Based on previous factor analyses of both NH and MHCI populations (de Jonghe & Kat, 1996; Zuidema, de Jonghe, Veltman, & Dassen, 2005), the agitation items were clustered into three factors: non-aggressive physical behaviour (pacing, hiding, hoarding, general restlessness, inappropriate dressing or disinhibition, handling things inappropriately and trying to get to different places), aggressive physical behaviour (hitting, pushing, scratching, grabbing, cursing or verbal aggression, spitting and strange noises) and agitated verbal behaviour (constant unwarranted requests for attention/help, complaining, repetitive sentences or questions and negativism).

Table 1. Demographic characteristics of double care demanding patients (DCDs) in MHCI and NH.

| Characteristics | All DCDs (n = 163) | MHCI* (n = 80) | NHa (n = 83) | P* |
|----------------|-------------------|---------------|------------|---|
| Age (years)    | Mean (SD)         | 68.2 (8.9)    | 71.6 (8.1) | 64.9 (8.5) | <0.001 |
| Range          |                   | 47 – 94       | 49 – 94    | 47 – 87   |           |
| Gender (n,%)   | Male              | 88 (54.0)     | 36 (45.0)  | 52 (62.7) | 0.024    |
| Representation (n,%) | Family        | 56 (34.4)     | 13 (16.5)  | 43 (52.4) | <0.001   |
|                | Ap. trustee: family | 50 (30.7)    | 27 (34.2)  | 23 (28.0) |           |
|                | Ap. trustee: law firm | 55 (33.7)    | 39 (49.4)  | 16 (19.5) |           |
| Marital status (n,%) | Married       | 38 (23.3)     | 8 (10.3)  | 30 (36.6) | <0.001   |
|                | Unmarried         | 46 (28.2)     | 32 (41.0) | 14 (17.1) |           |
|                | Divorced          | 58 (35.6)     | 29 (37.2) | 29 (35.4) |           |
|                | Widowed           | 18 (11.0)     | 9 (11.5)  | 9 (11.0)  |           |
| Educationb (n,%) | Low              | 104 (63.8)    | 63 (78.8) | 41 (49.4) | <0.001   |
|                | Middle            | 50 (30.7)     | 15 (18.8) | 35 (42.2) |           |
|                | High              | 9 (5.5)       | 2 (2.5)   | 7 (8.4)   |           |

| Length of stay (n,%) | >1 year | 132 (81) | 61 (76.2) | 71 (85.5) | 0.131 |

Note: *MHCI = mental health care institution.

aNH = nursing home.

bAppointed trustee.

*cLow = primary school, middle = secondary school and lower vocational education, high = upper vocational education and university.

*Chi-square (except age = Mann–Whitney U test), significance level is 0.05.

Statistical analysis
The Statistical Package for Social Sciences (SPSS), version 21 was used for the statistical analysis. The analysis consisted of conducting descriptive statistics of basic patient characteristics, psychiatric illnesses, NPS, somatic illnesses, care dependency and perceived quality of life. Exploratory bivariate comparisons between patient groups on the prevalence of medical conditions, psychiatric diagnoses and NPS were performed using Chi-square tests for nominal or ordinal variables and independent-samples t-tests for scale variables. For variables that had an abnormal parametric distribution, analyses were performed using the Mann–Whitney U test. P-values of 0.05 or less were considered to be statistically significant.

Results
A total of 163 patients were included, 83 from special DCD-wards of NHs (maximum 110 beds) and 80 from special DCD-wards of a MHCI (maximum 76 beds; four patients were transferred to NHs during the inclusion period and then four newly admitted patients were included in the study during the inclusion period). All of the specialized care units had somewhat different criteria for admission. Some units included patients with a specific psychiatric history in combination with cognitive decline or physical disability; others included patients with very severe NPS due to specific types of dementia in combination with physical disability and/or a history of psychiatric treatment. Data collection from patient records was complete. Proxy information about patients was collected in 70 out of 80 MHCI-DCDs (87.5%) and in 71 out of 83 NH-DCDs (85.5%). Reasons for non-response were (severe) illness or internal transfer of primary responsible vocational nurses. Direct information from patients was collected in 50 out of 80 MHCI-DCDs (62.5%) and 57 out of 83 NH-DCDs (68.7%). Refusal and serious hearing or vision impairment were reasons for the non-participation of patients.

Demographic characteristics
Demographic characteristics of all of the included individuals are shown in Table 1. The mean age of the DCDs was 68 years,
with younger DCDs in the NH group. Within the NH-DCDs, there were almost two times more men than women. Many of the MHCI-DCDs had never been married. Participants’ educational level was low for most of the DCDs, with a distinct higher percentage of lower education within the MHCI group. Most of the DCDs had been institutionalized for longer than one year. The MHCI-DCDs were mostly represented by appointed trustees, while NH-DCDs usually had family members serving as representatives.

**Physical health-related characteristics**

Multimorbidity and care dependency are shown in Table 2. Overall, the DCDs had a mean of seven comorbid conditions, with a mean disease severity score of 15.2 and a high prevalence of cardiovascular, pulmonary, neurological and gastrointestinal problems. All of the DCDs showed a clear nursing care dependency, with a mean care dependency score of 45 (range 17–74; cut-off score ≤ 68).

**Mental health-related characteristics**

In Table 3, both axis I and axis II diagnoses are represented. Over one-third of the MHCI-DCDs had a psychotic disorder and the presence of multiple diagnosis on Axis I was two times higher among the MHCI group. Cognitive disorders were four times more often present among the NH group. A personality disorder was diagnosed in almost one-quarter of all the DCDs. More than one-fifth of the MHCI-DCDs were intellectually disabled. The mean cognitive functioning of the participants did not differ between groups (Table 4), with a mean cognitive functioning score of 45 (range 17–36; cut-off score < 68).

| Table 2. Somatic and care characteristics. |
|---------------------------------------------|
| All DCDs | MHCI | NH |
|---------|------|-----|
| CDS<sup>a</sup> | Mean (SD) | 45 | 43.9 (13.8) | 46.1 (17.1) |
| Range | 17–74 | 18–71 | 17–74 |
| CRS total<sup>b</sup> | Mean (SD) | 15.2 (5.0) | 15.4 (4.7) | 14.9 (5.3) |
| Range | 2–31 | 7–31 | 2–27 |
| Cardiac | N (%) | 57 (35.0) | 34 (42.5) | 23 (27.7) |
| Vascular | 80 (49.1) | 41 (51.2) | 39 (47.0) |
| Haematological | 34 (20.9) | 24 (30.0) | 10 (12.0) |
| Respiratory | 134 (82.2) | 65 (81.2) | 69 (83.1) |
| Ophthalmological and ORL<sup>c</sup> | 113 (69.3) | 54 (67.5) | 59 (71.1) |
| Upper gastrointestinal | 94 (57.7) | 41 (51.2) | 33 (63.9) |
| Lower gastrointestinal | 120 (73.6) | 58 (72.5) | 62 (74.7) |
| Hepatic and pancreatic | 63 (38.7) | 19 (23.8) | 44 (53.0) |
| Renal | 31 (19.0) | 17 (21.2) | 14 (16.9) |
| Genitourinary | 140 (85.9) | 76 (95.0) | 64 (77.1) |
| Musculoskeletal | 123 (75.3) | 60 (75.0) | 63 (75.9) |
| Neurological | 105 (64.4) | 49 (61.3) | 56 (67.5) |
| Endocrine, metabolic | 48 (29.4) | 28 (35.0) | 20 (24.1) |
| Multimorbidity<sup>d</sup> | Mean (SD) | 7.0 (2.2) | 7.1 (2.1) | 6.9 (2.3) |
| Range | 1–27 | 3–12 | 1–12 |

| Table 3. Psychiatric diagnoses. |
|---------------------------------|
| All DCDs | MHCI | NH |
|---------|------|-----|
| DSM-IV axis I diagnosis | All DCDs (n = 163) | MHCI (n = 80) | NH (n = 83) |
| Psychotic disorders total | 30 (18.4%) | 29 (36.2%) | 1 (1.2%) | <0.001 |
| Schizophrenia | 21 | 20 | 1 |
| Schizo-affective | 6 | 6 | – |
| Psychosis NOS<sup>e</sup> | 3 | 3 | – |
| DSM-IV axis II diagnosis | All DCDs (n = 163) | MHCI (n = 80) | NH (n = 83) |
| Personality disorder | 38 (23.3%) | 18 (22.5%) | 20 (24.1%) | 0.048 |
| Personality disorder probable | 34 (20.9%) | 12 (15.0%) | 22 (26.5%) |
| No personality disorder | 66 (40.5%) | 32 (40.0%) | 34 (41.0%) |
| Intellectually disabled | 25 (15.3%) | 18 (22.5%) | 7 (8.4%) |

Note: *MHCI = mental health care institution.  
*NH = nursing home.  
*NOS = not otherwise specified.  
*Lewy body dementia and frontal-temporal lobe dementia and young onset dementia.  
*Chi-square, significance level is 0.05.

| Table 4. Cognitive functioning, anxiety and depression. |
|--------------------------------------------------------|
| All DCDs | MHCI | NH |
|---------|------|-----|
| MMSE<sup>a</sup> | Mean (SD) | 18.2 (7.4) | 17.4 (7.4) | 18.8 (7.5) | 0.253 |
| Range | 2–30 | 4–30 | 2–30 |
| HADS<sup>b</sup> anxiety | Mean (SD) | 6.2 (3.8) | 6.9 (4.2) | 5.7 (3.4) | 0.111 |
| Range | 1–21 | 1–21 | 1–21 |
| HADS<sup>c</sup> depression | Mean (SD) | 11.7 (3.7) | 10.3 (3.7) | 12.8 (3.3) | 0.001 |
| Range | 3–15 | 3–15 | 4–18 |

Note: *MHCI = mental health care institution.  
*NH = nursing home.  
*Mini Mental State Examination.  
*Hospital Anxiety and Depression Scale.  
*Mann–Whitney U test, significance level is 0.05.

**Quality of life related characteristics**

The majority of the patients expressed satisfaction with their quality of life, with higher satisfaction rates in the NH-DCD
Table 5. Neuropsychiatric symptoms.

|                      | All DCDs | MHCI | NH | P       |
|----------------------|----------|------|----|---------|
|                      | (n = 141)  | (n = 70) | (n = 71) |
| NPIb                 |          |       |    |         |
| Total mean (SD)      | 29.5 (21.1) | 32.6 (19.5) | 25.9 (22.5) | 0.009 |
| Clinical relevant items (%) |     |      |    |         |
| Agitation/aggression | 46.2 (54.2) | 48.4 (38.4) | 38.4 (20.4) | 0.056 |
| Anxiety              | 21.4 (33.3) | 21.4 (9.6)  | 21.3 (9.6)  | <0.001 |
| Apathy               | 37.2 (37.5) | 37.5 (37.5) | 37.5 (37.5) | 0.949 |
| Restlessness         | 16.6 (20.8) | 12.3 (12.3) | 12.3 (12.3) | 0.168 |
| Depression           | 24.8 (25.0) | 24.7 (24.7) | 24.7 (24.7) | 0.962 |
| Eating disorder      | 15.2 (20.8) | 9.6 (9.6)  | 9.6 (9.6)  | 0.059 |
| Hallucinations       | 22.8 (33.3) | 12.3 (12.3) | 12.3 (12.3) | 0.003 |
| Disinhibition        | 35.9 (38.9) | 32.9 (32.9) | 32.9 (32.9) | 0.450 |
| Irritability         | 46.9 (54.2) | 39.7 (39.7) | 39.7 (39.7) | 0.081 |
| Sleep disturbance    | 17.2 (15.3) | 19.2 (19.2) | 19.2 (19.2) | 0.534 |
| Euphoria             | 15.9 (15.3) | 16.4 (16.4) | 16.4 (16.4) | 0.484 |
| Delusions            | 42.8 (59.7) | 26.0 (26.0) | 26.0 (26.0) | <0.001 |
| CMAIb                |          |       |    |         |
| Total mean (SD)      | 48.6 (17.3) | 50.9 (19.7) | 46.1 (14.5) | 0.241 |
| Clinical relevant items (%) |     |      |    |         |
| Fact. physical aggression | 54.9 (59.7) | 50.0 (50.0) | 50.0 (50.0) | 0.241 |
| Fact. aggression, not physical | 60.8 (69.0) | 52.8 (52.8) | 52.8 (52.8) | 0.047 |
| Fact. verbally agitated behaviour | 64.5 (76.1) | 71.0 (71.0) | 71.0 (71.0) | 0.337 |

Note: NPI = Neuropsychiatric Inventory, clinical relevant score ≥ 4.  
CMAI = Cohen-Mansfield Agitation Inventory, clinical relevant score ≥ 3.  
MHCI = mental health care institution.  
NH = nursing home.  
Chi-square, significance level is 0.05.

Table 6. Patients perceived quality of life.

|                      | All DCDs | MHCI | NH |
|----------------------|----------|------|----|
|                      | (n = 108) | (n = 50) | (n = 58) |
| MANSAc (percentage (%)) |          |       |    |       |
| Life as a whole       | 56.0 (45.8) | 58.6 (58.6) | 58.6 (58.6) | 0.213 |
| Living arrangements   | 65.0 (55.1) | 65.5 (65.5) | 65.5 (65.5) | 0.337 |
| Social relationships  | 69.0 (54.0) | 72.4 (72.4) | 72.4 (72.4) | 0.060 |
| Psychological well-being | 64.0 (52.1) | 67.2 (67.2) | 67.2 (67.2) | 0.027 |
| Physical well-being   | 61.0 (52.1) | 62.1 (62.1) | 62.1 (62.1) | 0.191 |
| Care and treatment    | 74.0 (55.1) | 81.0 (81.0) | 81.0 (81.0) | 0.006 |

Note: MHCI = mental health care institution.  
NH = nursing home.  
CMAI = Cohen-Mansfield Agitation Inventory.  
Chi-square, significance level is 0.05.

*group for given care, treatment and psychological well-being (Table 6).

Discussion

To our knowledge, this is the first study to report and compare data on DCDs who are institutionalized in specialized units in either MHCI or NH settings.

The elderly DCD population was a rather heterogeneous group in terms of mental and physical health. As expected, mental health problems were clearly more prominent in the MHCI group. However, although we expected them to be more prominent in the NH group, physical health problems were equally divided between the groups. In both groups, nursing care dependency was clearly present. While more than half of all the DCDs were satisfied with their perceived quality of life, the NH-DCDs expressed an overall higher satisfaction rate.

In the present study, no differences between DCD groups were found regarding the severity of physical comorbidity (as expressed in the CIRS total score) or care dependency scores. As stated before, NHs are supposed to be more specialized in clinical conditions, meaning that MHCI-DCDs that also have important clinical problems might be in disadvantage.

The high prevalence of cardiovascular, pulmonary, neurological and gastrointestinal problems was consistent with earlier studies on psychiatric inpatients in both MHCI and NH (Lemke & Schaefer, 2010; Lyketsos, Dunn, Kaminsky, & Breaky, 2002; Robson & Gray, 2007; Scott & Happell, 2011). Compared to a group of NH-residents with comorbid anxiety and depression, our study found a higher comorbidity rate (7.1 versus 3.7) (Smallbrugge et al., 2006).

Contradictory findings on care dependency exist within the literature. Compared with our study, Aschbrenner found lower rates of care dependency in newly admitted NH-DCDs, while Fullerton found that NH-residents with schizophrenia had comparable care dependency scores (Aschbrenner, Grabowski, Cai, Bartels, & Mor, 2011; Fullerton, McGuire, Feng, Mor, & Grabowski, 2009). Although cognitive disorders were far more prevalent among NH-DCDs than MHCI-DCDs, it was striking that the MMSE-scores did not differ between the groups. This might be explained by the natural decline in cognitive functioning with ongoing schizophrenia and the proven significantly lower cognition rates in older patients with schizophrenia compared to older adults without schizophrenia and is consistent with the findings in earlier studies (Fullerton et al., 2009; Harvey, Reichenberg, Bowie, Patterson, & Heaton, 2010; Hendrie et al., 2014).

It could, however, also point to the fact that cognitive problems in MHCI settings are overlooked.

The mean total NPI-score in NH-DCDs in our study was higher compared to both a non-DCD NH dementia population (25.9 versus 16.9) and a group of young onset dementia patients (25.9 versus 24.9) (Mulders, Zuidema, Verhey, & Koopmans, 2014; Zuidema, Derksen, Verhey, & Koopmans, 2007). The finding that MHCI-DCDs had high levels of NPS with even more verbal disruption is consistent with the findings of McCarthy, Blow, and Kales (2004). A higher prevalence of delusions in the MHCI-DCDs could be explained by the high percentage of diagnosed psychotic disorders.

White et al. (1997) found that a more severe level of delusions was an important characteristic of elderly psychiatric patients who could not be discharged to a NH from a psychiatric hospital. This could indicate that accommodation within a MHCI-DCD-unit would be preferable for DCDDs who present with a more severe level of delusions. The MHCI-DCDs in this study were less satisfied with their overall experienced quality of life. This could be due to the known social withdrawal, flat affect and lack of motivation that occur in the general SMI population (Harvey et al., 1998).

Our study showed interesting demographical differences. Compared to the usual NH-population, there were twice as many men and the mean age was approximately 20 years younger in the NH-DCDs (Ribbe, Frijters, & van Mens, 1993). This could be explained by the fact that a large proportion of the NH-DCDs suffered from ARD or frontal-temporal lobe dementia (FTD). ARD and FTD are more prevalent among people who are younger than 65 years old, and ARD is also more prevalent among men (Harvey, Skelton-Robinson, & Rossor, 2003; Ridley, Draper, & Withall, 2013). Consistent with earlier findings, relatively many MHCI-DCDs were not married or divorced and had no family representation (Bartels, Mueser, & Miles, 1997). Lower educational levels in MHCI-DCDs have also been reported by Fullerton (Fullerton et al., 2009). The high prevalence of intellectually impaired MHCI-DCD patients could also explain the lower educational level within these DCDs.

Methodological considerations

The primary strength of this study is that various sources of information such as medical records, patient reports and
proxy information were combined during data collection. Furthermore, a comprehensive study of patient’s medical records could be accomplished for all of the included patients. This study may be limited in its power to demonstrate representative characteristics of the DCD population because of the use of a selected cohort of patients in the south of Limburg without a direct comparison to a non-DCD-population in either NH or MHCI.

Another possible limitation is the choice to use bivariate analysis to compare the characteristics between the two settings, because we included subjects on DCD-ward level. On individual patient level, however, bivariate analysis may not be sufficient from a statistical point of view. Despite these limitations, this study was a first important explorative step in gaining deeper insight into the specific characteristics of DCDs in both the NH and MHCI settings.

Conclusions and possible implications

The elderly DCD population in both settings was heterogeneous in many regards. The MHCI-DCDs had a similar level of considerable care dependency and comorbidity as the NH-DCDs. This stresses the importance of giving enough attention to physical care within a MHCI by allotting of personnel capable of supervising clinical diseases in the MHCI setting. There could be a mismatch between the type of patients and the type of care offered. The MHCI-DCDs clearly differed from the NH-DCDs as evidenced by a higher prevalence of psychotic symptoms and psychiatric morbidity.

The heterogeneity of DCDs and the resulting care complexities challenge the skills of professional caregivers in both settings, as they must be able to address both somatic care needs as well as psychiatric and psychogeriatric care needs. Given the high amount of NPS and the variation in psychiatric diagnoses and in dementia subtypes, professional caregivers are required to constantly switch between different approaches of care; sometimes a more restrictive or structuring approach is needed, and sometimes a more supportive or validating approach is more appropriate. Further knowledge is needed on the professional competencies required to deliver the most effective care for DCDs.

In light of the heterogeneity of the group and the partitions in providing care, the question of which type of care is most appropriate for which type of DCD patient remains to be answered.

This suggests that not only the criteria for admission to specialized MHCI- or NH-DCD-units and the transfer to a regular care unit need to be addressed, but the regulatory or funding barriers and reimbursement policies need to be considered as well. The heterogeneity of the group raises the question, what the usefulness is of the concept DCD. We think the relevance of the concept is the way it can be used to inform policies of organizing beds in a health care system inasmuch one does not overlook the needs and clinical supervision of patients in the MHCI setting, nor the needs of the patients and psychiatric training of nurses in the NH setting. Further research is needed to investigate these topics in more detail, using both qualitative and quantitative data.

Disclosure statement
No potential conflict of interest was reported by the authors.

Funding
CZH-Health Insurance Company (award number 20120010).

ORCID
Frans R. J. Verhey &http://orcid.org/0000-0002-8307-8406

References

Aschbrenner, K., Grabowski, D.C., Cai, S., Bartels, S.J., & Mor, V. (2011). Nursing home admissions and long-stay conversions among persons with and without serious mental illness. Journal of Aging & Social Policy, 23, 286 – 304.

Bakker, C., de Vugt, M.E., van Vliet, D., Verhey, F.R., Pijnenburg, Y.A., Vermeij-Dassen, M.J., & Koopmans, R.T. (2014). The relationship between unmet care needs in young-onset dementia and the course of neuropsychiatric symptoms: A two-year follow-up study. International Psychogeriatrics, 26(12), 1991 – 2000.

Bartels, S.J. (2004). Caring for the whole person: Integrated health care for older adults with severe mental illness and medical comorbidity. Journal of the American Geriatrics Society, 52, S249 – S257.

Bartels, S.J., Miles, K.M, Dums, A.R, & Levine, K.J. (2003). Are nursing homes appropriate for older adults with severe mental illness? Conflicting consumer and clinician views and implications for the Olmstead decision. Journal of the American Geriatrics Society, 51, 1571 – 1579.

Bartels, S.J., Mueser, K.T., & Miles, K.M. (1997). A comparative study of elderly patients with schizophrenia and bipolar disorder in nursing homes and the community. Schizophrenia Research, 27, 181 – 190.

Bleeker, J.A.C., De Reus, R., & Duurkoop, W.R.A. (1991). Deinstitutionalization and the infirm chronic psychiatric patient. Dementia and Geriatric Cognitive Disorders, 2, 222 – 224.

Cahn, W., Ramlal, D., Bruggeman, R., de Haan, L., Scheepers, F.E., van Soest, M.M., … Slooff, C.J. (2008). Prevention and treatment of somatic complications arising from the use of antipsychotics. Tijdschr Psychiatr, 50, 579 – 591.

Cohen-Mansfield, J. (1986). Agitated behaviors in the elderly: I. Preliminary results in the cognitively deteriorated. Journal of the American Geriatrics Society, 34, 722 – 727.

Collard, R.M., Boter, H., Schoevers, R.A., & Oude Voshaar, R.C. (2012). Prevalence of frailty in community-dwelling older persons: A systematic review. Journal of the American Geriatrics Society, 60, 1487 – 1492.

Collet, J., de Vugt, M.E., Verhey, F.R., & Schols, J.M. (2010). Efficacy of integrated interventions combining psychotropic care and nursing home care for nursing home residents: A review of the literature. International Journal of Geriatric Psychiatric, 25, 3 – 13.

Cummings, J.L., Mega, M., Gray, K., Rosenberg-Thompson, S., Carusi, D.A., & Gornbein, J. (1994). The Neuropsychiatric Inventory: Comprehensive assessment of psychopathology in dementia. Neurology, 44, 2308 – 2314.

De Hert, M., Correll, C.U., Bobes, J., Cetkovich-Bakmas, M., Cohen, D., Asai, I., … Gautam, S. (2011). Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. World Psychiatry, 10, 52 – 77.

de Jonghe, J.F., & Kat, M.G. (1996). Factor structure and validity of the Dutch version of the Cohen-Mansfield Agitation Inventory (CMAI-D). Journal of the American Geriatrics Society, 44, 888 – 889.

Dijkstra, A., Buist, G., & Dassen, T. (1998). Operationalization of the concept of ‘nursing care dependency’ for use in long-term care facilities. Australian and New Zealand Journal of Mental Health Nursing, 7, 142 – 151.

Dijkstra, A., Tiesinga, L.J., Plantinga, L., Veltham, G., & Dassen, T.W. (2005). Diagnostic accuracy of the care dependency scale. Journal of Advanced Nursing, 50, 410 – 416.

Dorland, L.M. (2007). Psychische hulpverlening aan ouderen in verzorgings- en verpleeghuizen. Monitor geestelijke gezondheid zorg Ouderen [Psychiatric care for elderly living in long term care facilities and nursing homes]. Utrecht: Trimbos Instituut.

Drukker, M., Bak, M., Campo, J., Driessen, G., Van Os, J., & Delespaul, P. (2010). The cumulative needs for care monitor: A unique monitoring system in the south of the Netherlands. Social Psychiatry and Psychiatric Epidemiology, 45, 475 – 485.

Dutch Health Care Inspectorate. (2004). Somatic care in psychiatric hospitals improved, but still not optimal. The Hague: Author.

Dutch Healthcare Inspectorate. (2007). State of health care report: Task reallocation is positive for the quality of care. The Hague: Author.
