The effect of integrated emotion-oriented care versus usual care on elderly persons with dementia in the nursing home and on nursing assistants: a randomized clinical trial

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SUMMARY

Objectives   To examine the effect of integrated emotion-oriented care on nursing home residents with dementia and nursing assistants.
Design   A multi-site randomized clinical trial with matched groups, and measurements at baseline and after seven months.
Setting   Sixteen psychogeriatric wards in fourteen nursing homes in the Netherlands.
Participants   One hundred and forty-six elderly residents with the diagnosis dementia of the Alzheimer (DAT) type, mixed DAT and vascular dementia, and dementia syndrome (NAO) and 99 nursing assistants.
Interventions   Integrated emotion-oriented care and usual care.
Measurements   *Demented elderly*: Behaviour and mood related to adaptation to the illness and the institutionalization. *Nursing assistants*: General health as measured by feelings of stress, stress reactions, feeling of competence and illness.
Results   Positive effects in favour of the integrated emotion-oriented care were found in mild to moderately demented residents on two adaptive tasks: maintaining an emotional balance (less anxiety) and preserving a positive self-image (less dissatisfaction). In the trained group of nursing assistants fewer stress reactions were found only in those who perceived improvement in their emotion-oriented care skills after training.
Conclusion   Emotion-oriented care is more effective with regard to the emotional adaptation in nursing homes of persons with a mild to moderate dementia. For the severely demented elderly we did not find this surplus value. This outcome is of clinical importance for elderly persons with dementia who are cared for in nursing homes. With respect to the nursing assistants it is concluded that emotion-oriented care has a positive influence on stress reactions in some of them. Copyright © 2005 John Wiley & Sons, Ltd.

KEY WORDS — dementia; nursing home residents; nursing assistants; psychosocial approaches; emotion-oriented care

INTRODUCTION

The term 'emotion-oriented care' was introduced in the Netherlands and Belgium by Verdult (1993).

Recently, Dröes (1998) defined emotion-oriented care in dementia as 'care, aimed at improving emotional and social functioning, and ultimately the quality of life, of persons suffering from dementia by assisting them in coping with the cognitive, emotional and social consequences of the disease, and by linking up with the individual functional abilities and the subjective perceptions of the individual'. Examples of emotion-oriented care are: validation therapy (Feil, 1989a, b), reminiscence therapy and sensory

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stimulation. Emotion-oriented approaches are generally applied as a supplement to the care that is offered based on the medical model and the model of consequences. Integrated emotion-oriented care is an approach developed recently by Van der Kooij (1986; 1988; 1996; 1998 a, b, c); van der Kooij and de Ruyter (1996) and Finnema *et al*. (1998). The approach integrates elements from the existing emotion-oriented approaches in the 24-hour care for persons with dementia on the basis of a protocol.

Little research has been done so far into the effectiveness of the emotion-oriented approaches, although experiences from practice look promising (Dröes and Van Tilburg, 1996; Kruyver and Kerkstra, 1996; Midence and Cunliffe, 1996; Woods, 1996; Day, 1997; Dröes, 1997). The American Psychiatric Association (1997) therefore advocates more scientific research into the effects of these approaches on persons with dementia. This article addresses the results of a randomized clinical trial into the effect of integrated emotion-oriented care on nursing home residents with dementia and their nursing assistants.

The theoretical framework for the selection of the effect variables was based on Dröes' Adaptation-coping model (Finnema *et al*., 2000), that was developed especially for persons with dementia, and based on the Stress-appraisal-coping model of Lazarus and Folkman (1984) and Moos and Tsu's (1977) crisis model that concentrates specifically on the adjustment of people in case of serious (chronic) illness Dröes (1996); Dröes (1998). The study consisted of a quantitative section, a qualitative section and a cost-effectiveness analysis. The central research questions were:

(a) Is the course of the adaptation process of demented elderly persons in nursing homes more favourable if they receive integrated emotion-oriented care than when they receive usual care?
(b) Does application of integrated emotion-oriented care, as compared to usual care, result in an improvement of the general health of nursing assistants?
(c) What are the costs of training nursing assistants and the application of integrated emotion-oriented care compared to the costs of usual care, and how do these costs correlate with the effectiveness measured in the dementing elderly persons on the one hand, and the nursing assistants on the other?

Furthermore, we investigated whether implementation of integrated emotion-oriented care had a positive influence on how the relatives of the persons with dementia judged the quality of the offered care and the degree in which they were involved in the care.

In this article we focus on the quantitative section of the study for questions a and b. The results of the qualitative section and the cost-effectiveness analysis, as well as the family study, are described elsewhere (Finnema *et al*., 2001).

METHODS

Design

A pretest–posttest control group design with matched groups (randomized clinical trial) was used. Matching of the groups took place on several institutional, ward, resident and nursing assistant features, such as: ward policy concerning transfer of residents to other wards, the residents' age and level of cognitive functioning and the nursing assistants' age and number of years of experience working with demented nursing home residents (Finnema *et al*., 1998).

During a period of nine months, half of the residents in the sample (the experimental group) were offered integrated emotion-oriented care. The nursing assistants in the experimental group were trained to apply emotion-oriented approaches in the 24-hour usual quality care. In the same period the nursing assistants in the control group were trained and given support in offering the usual nursing home quality care, but without the emotion-oriented approaches.

Usual quality care was defined as working according to the conditions for quality of care developed by the Dutch Association for Nursing Home Care (Engbers-Kamps and Sprundel, 1993). We called this way of working 'usual care' because these guidelines were at that time accepted as the preferred standard in the Netherlands. The main principles are a multidisciplinary approach to care, and regular evaluation.

Data collection took place between the Spring of 1997 and January 1998. To determine sample size prior to the study a power calculation was undertaken. We were interested in substantial positive changes within nursing home residents and nursing assistants. With an effectsize of $d = 0.5$ (Cohen, 1988) and a power of 80% we needed a sample size of 140 nursing home residents (70 in each group) and a sample size of 88 nursing assistants (44 in each group). An anticipated number of missing values, due to mortality of patients, or resignation of nursing assistants, led us to include 10% extra participants.

Baseline measurement was carried out in the month before the start of the intervention period. The second and third measurements were carried out after three and seven months respectively. The first and third

measurements were used to examine the effect of the integrated emotion-oriented care. The second measurement was used for the purpose of checking for potential confounders. With respect to the residents the folllowing potential confounders were recorded: illness, life-events; longitudinal changes in cognitive functioning; changes in the use of psychopharmacological drugs and other treatments besides the daily care, such as physiotherapy and activity therapy. With respect to the nursing assistants, life events and illness were recorded.

Participants

Selection of the wards, residents and nursing assistants took place in different phases. The procedure started with a request to all 269 nursing homes in the Netherlands with demented residents to participate in the study. Eighty-four nursing homes (31%) responded positively. The application of the validation approach was an exclusion criterium which was clearly stated in the request for participating in the study. In 1996, at the start of the study, about half of the 269 ($n = 135$) psychogeriatric nursing homes in the Netherlands already applied elements of the validation approach in caring for their demented residents (Kruyver and Kerkstra, 1996). The positive respons of 84 nursing home was therefore satisfying. Of these 84 nursing homes, 26 were excluded for reasons such as: planned reconstruction of the building, care or management reorganization, and already systematically using emotion-oriented approaches, such as validation.

Matching of the wards took place in two phases (see Figure 1). First, the preliminary matching of the interested and suitable nursing homes ($n = 58$) on several ward characteristics such as the nursing system and ward policy concerning transfer of residents to other wards, attitude towards deviant behaviour of residents, physical autonomy of residents, social-recreative activities and family involvement that took place. After this preliminary match a second and final match regarding resident features was executed. The matching criteria for the residents consisted of age and level of cognitive functioning. After this procedure, 16 wards of 14 nursing homes were included as best matched pairs. These selected wards of each pair were randomly assigned to the experimental or control condition. To prevent contamination none of the matched pairs were located in the same nursing home.

The nurses of the participating wards were selected on several criteria such as: age, education and number
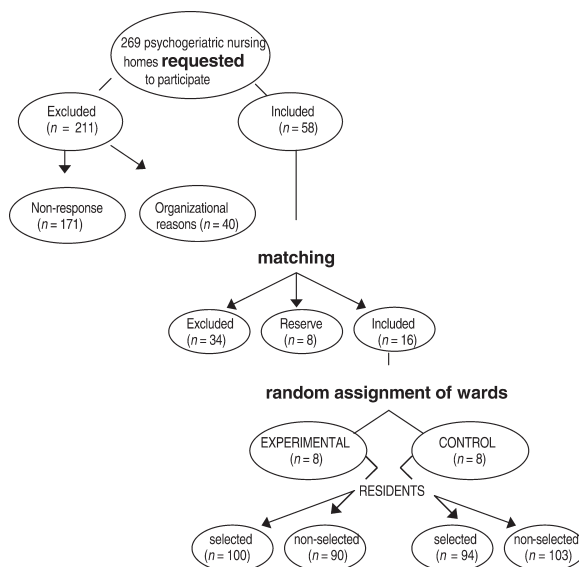

Figure 1.   Selection and matching of participating wards

of years of experience in working with demented residents. The 58 best matched pairs were selected for the research project. This design is discussed thoroughly elsewhere (Finnema *et al.*, 1998).

The selection criteria for participation in the study were: probable diagnosis dementia of the Alzheimer Type (DAT), combined DAT and vascular dementia, Dementia syndrome (NAO) or amnestic syndrome, age 65 or older, level of functioning needing assistance or care (intensive nursing excluded), and a minimum of one month institutionalization at baseline. All residents were diagnosed by the nursing home physicians and checked on the criteria of DSM-IV (American Psychiatric Association, 1994) for dementia syndrome by examination of their medical record (also to rule out physical and psychiatric causes of the cognitive impairments). The Global Deterioration Scale (Reisberg *et al.*, 1982; Reisberg, 1983; Muskens *et al.*, 1992) was used to determine the severity of the dementia.

The Beoordelingsschaal voor Oudere Patiënten (BOP) (Kam *et al.*, 1971) (verbatim: Assessment Scale for Elderly Patients, ASEP) is a behavioral rating scale, derived from the Stockton Geriatric Rating Scale (Meer and Baker, 1966). The scale contains 35 items of behavioural and cognitive impairment. Scores are calculated on six subscales: dependency, aggressive behaviour, physical disability, depression, orientation and communication, apathy. The items are assessed on a three-point rating scale (0–2), a higher

score indicating more impairment. Internal consistency (Cronbach's alpha) varied between 0.74 and 0.94 (van der Kam et al., 1971).

To determine the level of needing assistance or care we used the ASEP scale 3C 'mental disability' (van der Kam et al., 1971). This scale consists of the following four items: 'Is aware in what kind of institute he/she is staying in', 'Knows the personnel by name', 'Understands what he/or she is being told', 'Responds when his/her name is mentioned'. The minimum score on the scale is 0, maximum score 8. A score of 0 to 5 indicates needing assistance or care (Dröes, 1991). Residents with a score of 6 or more (in need of nursing) were excluded from the study. Of the 387 residents on the participating wards, 194 were selected for the study. To prevent the selected residents being treated differently from the non-selected residents, the staff on the wards were not told about (blinded for) this selection, and data were gathered on non-selected residents also.

Over the course of the study, 48 of the 194 residents dropped out of the study, due to: death (33), transfer to another ward (14), or discharge from the home (1). There was no relationship between drop-out and group (experimental or control). Data were gathered at baseline, the intermediate and final measurements on the 146 'completers'.

At the start of the study, the completers in the experimental group and the control group did not differ significantly on personal characteristics and outcome measures. However, in the experimental group more residents were diagnosed globally with Dementia syndrome (NAO) and fewer with the more specific diagnosis Dementia of the Alzheimer type and Combined Dementia of the Alzheimer type and vascular dementia (see Table 1).

The *nursing assistants* were selected on several criteria such as: age, education and number of years of experience working with demented residents. In addition, the minimum employment requirement was 60% three days a week.

At the start of the study, 124 nursing assistants participated. During the experimental period 25 nursing assistants dropped out due to: illness (11), pregnancy (2), and transfer (9). In three cases questionnaires were missing. Data analysis was carried out on 99 'complete' cases. Drop-out did not differ between the groups ($\chi^2_1 = 1.46$; $p = 0.23$). We recorded no significant differences between the groups on personal characteristics and outcome variables at the start of the study.

Comparability of population with other nursing homes in the Netherlands

To examine whether the participating nursing homes were comparible with other nursing homes in the Netherlands we compared different variables.

We investigated the social climate on a nursing home level. We used several subscales from the Questionnaire for Institutional policy and Care programme (Vragenlijst voor Instellingsbeleid en Zorgprogramma (VIZ), (van Weert and Beuken, 1987), i.e., tolerance for deviant behaviour, respect for physical autonomy, social and recreational activities and informal involvement. Compared to the

Table 1. Characteristics of selected residents (completers) at baseline

	Experimental ($n = 67$)	Control ($n = 79$)	Test statistic	P
Sex				
Female	54 (81%)	64 (81%)	$\chi^2_1 = 0.001$	0.98
Male	13 (19%)	15 (19%)		
Diagnosis				
Alzheimer's (DAT)	47 (70%)	60 (76%)		
(Combined DAT + vascular)	1 (2%)	7 (9%)	$\chi^2_3 = 9.95$	0.02
Amnestic syndrome	0 (0%)	2 (3%)		
Dementia syndrome	19 (29%)	10 (13%)		
Age (mean; SD)	83.8 (5.3)	83.6 (5.8)		
Duration institutionalization Years (mean; SD)	1.5 (1.2)	1.9 (1.7)		
Needing assistance/care (ASEP 1 mean; SD)	18.5 (7.8)	17.8 (8.0)	$F_{5;140} = 0.89$	0.49
Physical disability (ASEP3A mean; SD)	2.8 (1.7)	2.7 (1.8)		
Mental disability (ASEP3C mean; SD)	3.4 (1.3)	3.2 (1.5)		
Severity dementia				
GDS-score (Reisberg, 1983)				
Mild (1–2)	2 (3%)	5 (6%)		
Moderate-moderately severe (3–4)	29 (43%)	40 (51%)	$\chi^2_2 = 2.12$	0.35
Severe-very severe (5–6)	36 (54%)	34 (43%)		

Table 2.   Characteristics of selected nursing assistants at baseline

	Experimental ($n = 46$)	Control ($n = 53$)	Test statistic	P
Sex				
Female	40 (87%)	46 (87%)	$\chi^2_1 = 0.001$	0.98
Male	6 (13%)	7 (13%)		
Age (mean; SD)	30.8 (8.0)	30.2 (7.4)	$F_{3,92} = 1.16$	0.33
Work experience in years (mean; sd)	8.05 (5.6)	8.95 (5.6)		
Psychogeriatric experience (mean; sd)	6.64 (5.6)	6.72 (4.1)		
Education*				
Geriatric orderly	0 (0%)	1 (2%)	$\chi^2_6 = 6.88$	0.33
Nursing assistant	43 (94%)	44 (84%)		
Daytime course (MDGO-vz/vp)	1 (2%)	6 (12%)		
Nurse	1 (2%)	2 (4%)		
Training interrupted	1 (2%)	0 (0%)		
Position				
Nursing assistant	40 (87%)	44 (83%)	$\chi^2_4 = 2.85$	0.58
Nurse	0 (0%)	2 (3%)		
Ward assistant	1 (2%)	1 (2%)		
Team leader	5 (11%)	6 (12%)		

*In the Netherlands nursing assistants who work in nursing homes have received specific training, consisting of two and a half years in-service training (including seven months of theoretical education), or a three year daytime course.

nursing homes that were rejected in the selection phase ($n = 47$), we found, based on *t*-tests, no significant differences on any of the mentioned subscales ($p > 0.05$). Comparison with nursing homes that participated in earlier studies by van Weert and Beuken (1987) ($n = 7$) and Dröes (1991) ($n = 3$), revealed a difference only with regard to 'tolerance for deviant behaviour' in the study by Van Weert and Beuken (1987) ($F_{2;23} = 13.92$; $p = 0.0001$). On average, the nursing homes selected for our study were more tolerant regarding deviant behaviour by residents. However, this might have to do with general changes in attitudes and care approaches in nursing homes in our country in the last decades.

We compared the ages of the residents with the data from the Nursing home Information System (Verpleeghuis Informatie Systeem–SIVIS) of the Health Care Information Centre (Stichting Informatiecentrum Gezondheidszorg–SIG, 1996). The ages of the residents in our study were not significantly different.

In addition, we compared the level of required assistance/care, physical disability and mental disability of the residents who participated in our study, with data from a study conducted among nursing home residents in three psychogeriatric nursing homes in the province of Drenthe (Schreurs, 1995). We employed the scores on the ASEP (Assessment Scale for Elderly Patients; van der Kam *et al.*, 1971) and checked the differences by means of *t*-tests. The residents of the nursing home wards selected by us proved less in need of assistance ($t = -10.59$;

$p = 0.000$), less severely physically disabled ($t = -5.25$; $p = 0.000$), and less severely mentally disabled ($t = -13.01$; $p = 0.000$) than the total population in Schreurs' study (1995). This may be explained by the fact that we had excluded wards for residents in need of nursing from our study. Compared to the subgroup of residents in need of assistance and care in Schreurs' study, the residents on our wards were *more* in need of assistance (ASEP1) ($t = 10.26$; $p = 0.000$), more severely physically disabled ($t = 9.77$, $p = 0.000$), and more severely mentally disabled ($t = 3.05$; $p = 0.002$). One the one hand this is explained by the fact that there were residents in severe need of assistance on the wards we selected (naturally, Schreurs did not include these residents in her subgroup 'in need of assistance and/ or in need of care); on the other hand perhaps by the fact that the level of required assistance has risen over the years in the Dutch nursing homes. Schreurs conducted her study in the early 1990s. It is a well-known fact that the degree of required assistance at the time of admission has increased since that time.

The average age of the selected nursing assistants was lower than the national average for nursing assistants in nursing homes (van der Windt *et al.*, 1997), 30.4 against 32.3 respectively ($t = -2.87$, $p = 0.005$). As it turned out, a relatively large number (almost 40%) of the nursing assistants was under the age of 26. One explanation may be found in our selection criterion, that nursing assistants had to work a minimum of 60%, and all shifts (day, evening and night). Caregivers in the age group up to 26 often work

more hours than older nursing assistants (van der Windt *et al.*, 1997).

The percentage of women (86.3%) among the selected nursing assistants did not differ significantly from the national average of female nurses and nursing assistants (89.9%) ($Z = -0.185$; $p > 0.1$).

Based on these results we concluded that the selection of nursing homes, wards and nursing assistants did not give cause to believe that our sample deviated too much from the general situation in Dutch psychogeriatric nursing homes.

Intervention

Two interventions were carried out in the context of the study:

- Usual care: working in accordance with the guidelines of the Model-Care plan of the Dutch Association of Nursing Home Care;
- Offering integrated emotion-oriented care in combination with working according to the guidelines in the Model-Care plan.

Both interventions were developed specifically for the study. To prevent any mixing of the interventions, they were supervised by different nursing advisors.

Model-care plan training course. The introductory course Model-Care plan took place in all of the participating nursing homes and consisted of two half-day periods. The course addressed various aspects of approaching one's work methodically, and drawing up individual care plans for each resident. In addition, agreements reached in the multidiciplinary consultation group were monitored. We attempted to stay as close as possible to the way of working already used on the wards. One staff member per unit was asked to become an adviser, whose main task was to stimulate the staff on the wards during the study period to work according to the principles of the Model-Care plan. In addition to the training course, the advisers received a minimum of three half days supervision on the workfloor by a nursing consultant, and they participated in three one-day network meetings. The advisers met to exchange experiences and information, and to receive support. The network meetings for advisers were continued during the course of the experimental period, and the nursing consultant came to the ward one half day per month to supervise the working according to the principles of the Model-Care plan.

Implementation of integrated emotion-oriented care. In addition to training in and supervision of working according to the principles of the Model-Care plan, the experimental wards received training and supervision in the application of integrated emotion-oriented care over a period of nine months. The following training courses were offered:

- Basic training emotion-oriented care for all staff members involved in the care;
- Advanced course 'emotion-oriented care worker' for five staff members on each ward;
- A training course 'adviser emotion-oriented care' for one staff member per ward.

The basic training course emotion-oriented care was organized in the nursing homes and started immediately after the baseline measurement. The course took two days, and included an intermediary period of two weeks for homework. The basic course addressed the staff members' own experience, the phases of ego-experience of the demented residents, and the application of (non-)verbal empathic skills (van der Kooij, 2002). Participants were asked to characterize several residents on the basis of an observation form and their life history. The basic course was attended by 230 nursing assistants and by professionals from the other disciplines, such as activity therapists, nursing home physicians and psychologists. We selected 75 staff members for the worker course (advanced course), which consisted of seven days spread over a period of seven to eight months. From each experimental ward the team leader or head of the ward, the psychologist and two or three nursing assistants participated in this training course. Central issues in this course were: the experiences of the residents, making a life history, being alert to how the past may affect the present, and acknowledgement of the resident's experiences. Fourteen staff members were selected for the adviser course. These were motivated, enthousiastic staff members with the skills to stimulate and coach colleagues in applying the integrated emotion-oriented care approach. This course consisted of ten days, spread over nine months. Prior to the experimental period, the consultants attended both the basic course and the worker course. During the experiment the trained advisers were responsible for the implementation of integrated emotion-oriented care on their ward. They also learned to organize and lead an emotion-oriented group for residents.

A nursing adviser visited the wards four times for one day, to provide supervision on the application of the integrated emotion-oriented approach in the daily care, to train the empathic skills, to use the newly

developed care forms, to give feed back about the participation in the multidisciplinary consultation group and the emotion-oriented group.

Monitoring the compliance of the intervention. At the end of the experiment we checked for the compliance of the intervention. Though the coping behaviour of the nurses, measured on the Jalowiec Coping Scale (Jalowiec, 1987), did not change, the nursing assistants in the experimental group scored higher in the final measurement than the nursing assistants in the control group on the subscales 'professionalism' ($p < 0.01$) and 'utilization of knowledge about the resident' ($p < 0.01$) from the questionnaire 'self-assessment Nursing Skills in Handling Dementing Elderly' (van der Kooij, 1998a).

The results from the questionnaire, which was completed by the relatives also showed that the nursing assistants in the experimental group made more use of knowledge about the resident at the final measurement, than the nursing assistants in the control group (Finnema *et al.*, 2001). We concluded that the trained nursing assistants showed an increase in emotion-oriented care skills and we therefore supposed that they applied the emotion-oriented care more often than before.

Instruments

Residents. In our selection of effect variables, we started from the seven adaptive tasks of the Adaptation-coping model (Moos and Tsu, 1977; Dröes, 1996; Finnema *et al.*, 2000). Each of these tasks was operationalized by means of behavioural and/or mood variables. Subsequently they were measured by using existing measurement instruments, for example the BIP (Verstraten and Eekelen, 1987), the Cornell Scale for Depression in Dementia (Alexopoulos *et al.*, 1988; Dröes, 1996), the Cohen-Mansfield Agitation Inventory (Cohen-Mansfield, 1991), the Geriatric Resident Goal Scale (GRGS) and the Philadelphia Geriatric Center Morale Scale (PGCMS) (Lawton, 1975). As a measure of the reliability of the instruments, we calculated Cronbach's alpha, using the data from the baseline measurement. The values we found for the measuring instruments for residents varied between 0.65 for the PGCMS subscale 'attitude towards ageing' and 0.87 for the GRGS subscale 'other activities'.

Nursing assistants. The central dependent variable for the group of nursing assistants was general health. This concept was operationalized in the following

variables: perceived work-related stress, stress reactions, feeling of competence and number of days of absenteeism due to illness.

The Organization and Stress Scale (Bergers *et al.*, 1986) was used to measure perceived stress at work. The General Health Questionnaire (GHQ-28) (Goldberg and Hillier, 1979) was used to assess stress reactions. The feeling of competence was measured with the Dutch Work Satisfaction Scale (Boumans, 1990). Data about the number of days of absenteeism were provided by the personnel administration of the nursing homes. The Cronbach's alpha values varied from 0.83 for the Organization and Stress Scale to 0.90 for the GHQ-28.

For the nursing assistants, as for the residents, data were collected on several potential confounders: the use of medication, visits to medical specialists and the occurrence of special events.

Data collection procedure

Prior to the data collection informed consent was received from each resident, or their family representative, and nursing assistant. We obtained the data on the residents via nursing assistants, heads of the ward, ward physicians and trained testing assistants. We investigated whether participation in the study influenced the judgement of the nursing assistants, by asking an independent nursing assistant-assessor from another ward, who was stationed on the research ward for two weeks, for a second opinion on 15 percent of the residents. The average Spearman rank correlation coefficient between the double assessments on all variables was 0.70. We found no indications that the judgement of the first nursing assistant-assessor deviated systematically from the assessment of the independent nursing assistant-assessor (Wilcoxon matched-pairs signed-ranks tests on all variables > 0.05).

The data on the nursing assistants were provided by them. We distributed the questionnaires personally at baseline and gave the necessary instructions. For the other measurements, we mailed the questionnaires to the contact persons in the nursing homes, who then handled the distribution and collection of the completed questionnaires.

Data analysis

Before starting the effect analyses we first checked, for the residents as well as for the nursing assistants, whether any confounding effect could be expected from autonomous changes and circumstances. We

furthermore looked at biographical data, such as duration of institutionalization and sex. We considered variables potential confounders if they related to the independent and dependent variables and furthermore preceded the intervention in terms of time.

In the context of potential autonomous changes in the dementia, we investigated the mental disability of residents. This increased, but the increase was similar for both groups. We did find a connection between the mental disability and several effect variables. We therefore included the starting level of mental disability as a covariate in the effect analysis. The experience of particular life events (death of a partner, illness, new roommate), proved not to be related to the effect variables. In our selection of outcome variables for the nursing home residents we started from the seven adaptive tasks of the Adaptation-coping model (Moos and Tsu, 1977; Dröes, 1991). Maintaining an emotional balance was measured with the Cornell Scale for Depression in Dementia (depressive behaviour; Alexopoulos *et al*., 1988; Dröes, 1996), a few subscales from the BIP (anxious behaviour, dependent behaviour, restless behaviour) (Verstraten and Van Eekelen, 1987) and the Cohen-Mansfield Agitation Inventory (aggressive behaviour; Cohen-Mansfield, 1991). We included the baseline measurements on these variables as covariates in the analyses of variance (MANOVA). The level of depression and anxiety present in the patients and nursing assistants was controlled for through the use of analysis of covariance, with the baseline levels as covariates.

At baseline there was no difference in the use of psycho-pharmacological drugs between the groups of residents, nor was there any connection between the use of psychopharmacological drugs and the effect variables. Other types of offered treatments (e.g. physiotherapy, activity therapy) also proved not related to the effect variables. We could not identify any confounding biographical variables, either for the residents, or for the nursing assistants. In the case of the nursing assistants the use of health care provisions and medication, and experiencing special events was also not related to the effect variables. In both groups of nursing assistants work experience was accompanied, however, by an increased feeling of competence and less perceived work-related stress and stress reactions. To correct for the influence of work experience, we included this variable as a covariate in the analyses. Finally, in the baseline measurement we investigated whether the matching of the wards was still satisfactory. This proved to be the case.

For the effect analyses we carried out covariance analyses on the final measurement, including the baseline measurement as covariate to take differences in the baseline measurement into account.

For the residents (multivariate) covariance analyses were carried out on each of the seven adaptive tasks. For the variables mentioned earlier: maintaining an emotional balance, developing and maintaining social relationships and coping with the nursing home environment, in the effect analysis we used composite scores that were determined on the basis of factor analysis (principal component analysis with Varimax rotation), carried out on the baseline data. The factor analysis resulted in four factors that accounted for 67.9% of the total variance: two factors for maintaining an emotional balance, one factor regarding maintaining social relationships and one factor regarding coping with the nursing home environment. As randomization took place on the ward level, we could not freely assume that the observations within the wards were independent of each other, which is a condition for statistical testing. We therefore conducted a multi-level analysis in addition to the covariance analysis. With multi-level analysis one can: (1) examine the extent of dependency of the observations on several levels in the hierarchy, and (2) if present, correct for it by including the level in the multi-level analysis.

We opted for effect size d as the effect measure, based on the guidelines suggested by Cohen (1988): small $d = 0.2$, moderate $d = 0.5$, large $d = \geq 0.8$.

Due to the lack of data on the residents who were transferred to other wards during the follow-up period, a formal intention-to-treat analysis was not possible. For that reason we opted for a 'multi-level analysis for repeated measurements', which took into account all available data (including the baseline data on the non-completers). We distinguished five possible levels of analysis, namely: nursing home, ward, randomization pair, patient, and time (first measurement/final measurement). We limited ourselves to the variables with the largest effect size in the completers analysis, i.e. Maintaining an emotional balance (unstable affect) and Preserving a positive self-image.

Maintaining an emotional balance. (unstable affect): the levels of nursing home and resident proved important. The effect of the intervention in this analysis was 7.77 [95% Confidence Intervals (CI) 7.26, 8.28] on the original scale, corresponding approximately with an effect size of 2.26 (95% CI 2.44, 2.79). The effect was significant and larger than the effect we found in the completers analysis.

Preserving a positive self-image. Only the level of time proved important here. The effect of the intervention in this analysis was 1.05 (95% CI 0.72, 1.39) on the original scale, corresponding with an effectsize of also approximately 1.05 (95% CI 0.72, 1.39), because of a standard deviation of exactly 1. In the multilevel analysis this effect was also significant and larger that the effect found in the completers analysis.

The direction of the results of the multilevel analysis therefore corresponds with the results of the covariance analyses. The difference in effect size between the results of the multilevel analysis and the MANCOVAs can perhaps be explained by the fact that the multilevel analysis for repeated measurements is based on 'random drop-out'. Naturally we don't know whether this was the case in our research sample, and we therefore report the most conservative results.

For the nursing assistants (multivariate) covariance analyses were carried out on the selected outcome variables. Since an effect of the integrated emotion-oriented care was only to be expected in nursing assistants who had increased their emotion-oriented care skills, we included an increase of these skills (increase vs. no increase) as a classification factor in the analyses. Because of the uneven distribution of sick days among the nursing assistants in the experimental and control group, we tested the difference in sick days between the groups non-parametrically with the Mann–Whitney U-test and the Wilcoxon Signed Rank Test. In the calculation of the difference the nursing assistants who were ill for a long period of time (more than 20 days) due to causes not related to the intervention (like pregnancy or whiplash), were excluded from the analyses ($n = 6$).

All analyses were conducted with the Statistical Programme for the Social Sciences (SPSS for Windows).

RESULTS

Effects on the residents

In the final measurement, significant differences in favour of the experimental group were observed only in the area of emotional adaptation (see Tables 3 and 4). First of all, an effect of integrated emotion-oriented care was demonstrated in the multivariate analysis in the residents less in need of assistance (ASEPI score < 19) (see Table 4) on maintaining an emotional balance: in the final measurement, the residents less in need of assistance/care (ASEPI-score < 19) of the experimental group ($n = 33$) exhib-

ited *less* anxious behaviour than the residents less in need of assistance/care from the control group ($n = 40$). We found no effect on the emotional balance of the residents who were *more* in need of assistance/care.

We also found a positive effect on maintaining a positive self-image (Table 3). Despite an increase in dissatisfaction with the present situation in both groups, the experimental group, as compared to the control group, was significantly less dissatisfied at the final measurement with the own situation (seeing enough of friends and acquaintances, feeling life is worthwhile and being satisfied) ($F_{1;34} = 4.63$; $p = 0.04$; $d = 0.57$). It should be noted that the self-assessment list used, the PGCMS (Lawton, 1975), could only be used on the residents with mild to moderate cognitive impairments ($n_E = 16$; $n_C = 19$). This means that this effect is also demonstrated only for the residents less in need of assistance/care.

There was no difference in effectiveness between the two care approaches on coping with an uncertain future. Addition of potential effect modifiers (the care organization in the nursing homes, i.e. team orientation or resident orientation; use of psychopharmacological drugs; frequency of visitors for the resident and having a partner) did not lead to different results. The expectation that integrated emotion-oriented care would lead to better cognitive adaptation, in other words to a better coping of demented residents with their own invalidity and/or a more adequate care relationship with the staff, was not confirmed in our study. Nor did we find significant differences between the groups in the degree of social adaptation, that is the degree in which they developed social relationships and maintained themselves with fellow residents and staff, and coped with the nursing home environment (participation in activities etc.). Adding potential effect modifiers, such as the way of organization of the care in the nursing homes, the use of psychopharmacological drugs and the degree of needing assistance/care, did not lead to different results.

Effects on nursing staff

On the separate variables for general health we found a significant difference in the final measurement only on stress reactions: nursing assistants in the experimental group who reported to apply more frequently emotion-oriented care skills at the time of the final measurement than during the baseline measurement, showed less stress reactions than the nursing assistants in the control group, who felt that they had improved regarding these skills (Table 5). In the nursing assistants

Table 3. Results of covariance analyses on effect measures for residents

Adaptation area / Problems with adaptive tasks / Behaviour variables	n	Baseline measurement		Final measurement		Adj. means final meas.[1]		Test statistic	p	Effect size (d)
		mE (SD)	mC (SD)	mE (SD)	mC (SD)	Exp.	Cont			
Cognitive adaptation										
Coping with invalidity										
Excess disabilities (0–10)	141	5.06 (1.6)	5.23 (1.7)	4.92 (1.5)	5.13 (1.5)	4.97	5.11	$F_{1;137}=0.62$	0.55	0.09
Care relationship wit staff										
BIP5 rebellious behaviour (0–15)	142	5.15 (2.6)	4.49 (2.9)	4.95 (2.7)	4.36 (2.6)	4.72	4.59	$F_{1;138}=0.64$	0.70	0.05
Emotional adaptation										
Maintaining emotional balance								$F_{2;135}=2.44$	0.09	0.38
Unstable affect	141	−0.15 (0.9)	0.05 (1.0)	7.17 (3.8)	8.24 (3.2)	7.28	8.14	$F_{1;136}=2.99$	0.09	0.29
Cornell depression scale (0–38)	143	7.35 (4.0)	7.87 (4.3)	8.25 (5.2)	8.05 (4.7)					
BIP13 dependent behaviour (0–15)	142	5.68 (3.5)	5.99 (3.1)	5.31 (3.5)	5.96 (2.9)					
BIP14 anxious behaviour (0–18)	142	2.78 (3.0)	3.60 (3.8)	2.94 (3.2)	4.21 (3.9)					
Agitation	141	0.04 (0.9)	−0.23 (0.9)	4.02 (3.5)	2.97 (3.4)	3.34	3.63	$F_{1;136}=0.43$	0.51	0.11
CMAIb physically aggressive behaviour (0–30)	142	2.11 (3.1)	1.44 (2.8)	2.15 (3.0)	1.38 (2.5)					
CMAId verbally aggressive behaviour (0–24)	142	3.37 (4.2)	2.36 (3.8)	3.89 (5.0)	3.04 (4.4)					
BIP10 restless behaviour (0–15)	142	5.00 (2.9)	4.12 (2.8)	4.54 (2.8)	4.44 (2.9)					
Maintaining positive self-image										
PGCMS Dissatisfaction with present situation (0–4)	35	0.69 (0.9)	1.26 (1.2)	2.00 (0.9)	2.32 (1.1)	1.84	2.47	$F_{1;31}=4.63$	0.04[2]	0.63
Preparing for an uncertain future										
PGCMS Attitude towards ageing (0–6)	35	1.44 (1.2)	2.13 (1.5)	2.84 (1.0)	2.73 (1.1)	2.84	2.61	$F_{1;31}=0.37$	0.55	0.18
Social adaptation										
Developing and maintaining social relationships	140	−0.18 (0.8)	0.07 (1.1)	4.96 (3.6)	5.71 (4.0)	5.27	5.36	$F_{1;136}=0.03$	0.86	0.03
Questionnaire social relationships										
Contacts fellow residents (0–5)	142	0.97 (1.9)	1.77 (2.3)	1.43 (2.2)	1.78 (2.4)					
Contacts staff (0–15)	142	4.63 (4.8)	4.90 (5.4)	4.77 (5.7)	5.69 (6.0)					
Coping with nursing home environment	140	−0.14 (1.0)	−0.08 (1.0)	7.69 (3.6)	7.51 (3.7)	7.74	7.46	$F_{1;136}=0.44$	0.51	0.06
BIP2 apathetic behaviour (0–18)	142	8.33 (3.3)	8.10 (3.4)	8.92 (3.5)	9.05 (3.5)					
BIP4 loss of decorum (0–15)	142	4.08 (2.4)	4.22 (2.7)	4.82 (2.9)	4.70 (2.8)					
BIP1 non-social behaviour (0–24)	142	10.12 (4.7)	10.77 (4.0)	11.69 (5.0)	11.52 (4.6)					
ASEP4 inactivity (0–14)	143	7.78 (3.1)	7.63 (3.1)	9.06 (2.9)	8.63 (3.3)					
GRGS-other activity (0–26)	142	9.06 (5.0)	9.56 (5.2)	7.17 (4.3)	8.19 (5.2)					

E = experimental group; C = control group.
[1]Adjusted means are the average scores on the final measurement, corrected for the scores on the baseline measurement and other covariates.
[2]Significant group effect in favour of the experimental group (see text).

Table 4. Results of covariance analyses on two adaptive tasks, with need for assistance as modifier

	n E	n C	Baseline ME (SD)	Baseline MC (SD)	Final mE (SD)	Final mC (SD)	Adj. means* E	Adj. means* C	Test statistic	p	Effect size d
Maintaining an emotional balance							7.23	8.08	$F_{2,133}=3.3$	0.04	0.44
Unstable affect									$F_{1,134}=2.8$	0.09	0.28
> in need of assistance	30	33	0.25 (0.9)	0.16 (1.3)	6.94 (3.8)	7.48 (2.9)	7.27	7.58			
< in need of assistance	35	43	0.02 (0.9)	0.16 (1.0)	7.36 (3.8)	8.81 (3.6)	7.19	8.59			
Agitation									$F_{1,134}=1.1$	0.28	0.19
> in need of assistance	30	33	0.46 (1.2)	0.25 (1.0)	6.05 (3.8)	4.54 (4.2)	5.24	4.26			
< in need of assistance	35	43	0.21 (0.7)	0.55 (0.5)	2.29 (2.0)	1.79 (2.1)	2.52	2.59			

E = experimental group; C = control group.
*Means on final measurement corrected for scores on baseline measurement.

Table 5. Results of Covariances analyses, Mann–Whitney U and Wilcoxons SR-test on aspects of General health in nursing assistants, divided into increase/no increase in emotion-oriented care skills

	n E	n C	Baseline mE (SD)	Baseline mC (SD)	Final mE (SD)	Final mC (SD)	Adjusted means mE	Adjusted means MC	Test statistic*	p
Stress perception: QOS (11–50)	95								$F_{1,90}=1.51$	0.54
Improved skill	35	11	23.09 (2.5)	23.22 (1.9)	23.15 (2.3)	22.98 (2.1)	23.02	22.59		
Not improved	9	40	22.97 (4.3)	22.45 (3.2)	24.25 (4.2)	23.31 (3.5)	24.73	23.70		
Stress reactions: GHQ-tot (0–84)	96								$F_{1,91}=9.11$	0.003
Improved skill	35	12	15.14 (7.9)	16.92 (12.2)	14.77 (6.8)	19.25 (9.8)	15.42	19.14		
Not improved	9	40	20.78 (12.3)	13.80 (5.9)	20.55 (12.3)	12.98 (5.1)	20.47	14.19		
Competence: SWS (5–25)	96								$F_{1,91}=0.09$	0.77
Improved skill	35	12	17.29 (3.1)	18.08 (2.2)	16.71 (2.4)	17.58 (2.0)	16.86	17.28		
Not improved	9	40	16.89 (3.4)	17.95 (3.0)	16.91 (3.0)	18.33 (2.9)	17.38	18.10		
Illness	93									
Difference between groups (baseline)	41	52	0.45 (1.96)	0.55 (2.24)					$U=997.5$	0.36
Difference between groups (final)	41	52			1.13 (4.05)	1.35 (3.89)			$U=975$	0.36
Difference within groups (b–f)	41	52	0.45 (1.96)		1.13 (4.05)				$Z=-1.42$	0.16
Difference within groups (b–f)	41	52		0.55 (2.24)		1.35 (3.89)			$Z=-1.26$	0.21

E = experimental group; C = control group; m = mean, SD = standard deviation.
*The presented F-values concern the interaction effects between the intervention and the improved or not improved emotion-oriented care skills. (QOS = Questionnaire Organization stress; GHQ = General Health Questionnaire; SWS = Satisfaction with Work Situation).

who did not feel they had improved in this respect, we found the opposite (significant interaction $F_{1;91} = 9.11$; $p = 0.003$). Inclusion of potential effect modifiers, such as the care organization in the nursing homes, age and working or not working in the large cities of Western Holland, did not lead to different results.

On the variables feeling of competence and perceived work-related stress we found no statistically significant differences between the groups (Table 5). Adding several effect modifiers to the analysis, such as the organization of the care in the nursing homes, work experience and increased emotion-oriented care skills, also did not lead to differences in perceived competence or work-related stress between the groups.

We also found no difference in absenteeism between the groups. The average numbers of sick days among the nursing assistants ($n = 93$) was less than one day (0.8 day). Most of the nursing assistants were not ill during the intervention period. There was no significant increase or decrease of illness in either group during this period.

We also conducted a multivariate analysis of general health (perceived work-related stress, stress reactions, feeling of competence), but again found no difference between the groups.

CONCLUSIONS AND DISCUSSION

Our first conclusion is that integrated emotion-oriented care, as compared to usual care, has a more positive effect on the emotional adaptation (balance, self-image) of mildly to moderately demented residents who are in need of assistance and/or care. The integrated emotion-oriented care proved to have no demonstrable surplus value for the cognitive and social adaptation. In the severely to very severely demented nursing home residents, we were unable to determine a surplus value of integrated emotion-oriented care on any of the adaptive tasks.

With respect to the general health of the nursing assistants, we can conclude that the integrated emotion-oriented care has a positive effect on stress reactions in a subgroup only, i.e. in those nursing assistants who reported to apply more emotion-oriented skills at the final measurement compared to baseline. On the other health variables we examined we found no difference between the experimental group and the control group.

Implications for the care of demented nursing home residents

As there is no reason to suppose that our patient group deviates from the population in other Dutch nursing homes, we expect that integrated emotion-oriented care would lead to the same results in other nursing home residents with the same diagnosis and in need of assistance and/or care. The modestly positive results of this study on residents with mild to moderate dementia justify that more systematic attention is given to the emotion-oriented care approach in psychogeriatric nursing homes than is common today. Especially because the results in the emotional domain confirm the findings of the qualitative part of the study that will be described elsewhere and also of previous studies of the effect of emotion-oriented approaches (Woods, 1996), such as validation (Toseland et al., 1997), reminiscence (Gibson, 1994) and snoezelen/sensory stimulation (Moffat et al., 1993); (Baker et al., 1997).

The effects on the general health of the nursing assistants were very limited. This is possibly related to the relatively short implementation period of the integrated emotion-oriented care and the fact that most of the nursing assistants attended only the basic course. One of the reasons why we chose a relatively short experimental period was the risk of too much drop-out due to death of residents if the study period was longer. A second reason was that in various psychosocial intervention studies which have been carried out on dementing persons in the past, effects became visible after a period of three to seven months (Dröes, 1996; Williams et al., 1987; Nooren-Staal et al., 1995; Tabourne, 1995; Dröes, 1996; Dröes, 1997; Dröes et al., 2000).

In practice a seven month implementation period proved too short to implement the new care approach satisfactorily. Furthermore, attending only the basic training course resulted in much less change in emotion-oriented care skills in nursing assistants, than attending both the basic and the advanced worker courses. More intensive and longer supervision of the application of emotion-oriented care could possibly lead to a more emotion-oriented attitude in the less emotion-oriented nursing assistants, and might therefore have a more positive effect on their general health (see also Hallberg and Norberg, (1993).

Implications for scientific research

The adaptation-coping model proved practicable as a theoretical framework: the adaptive tasks could be operationalized and were partially confirmed in a factor analysis. The validity of the model for this patient group should be examined further, also for future intervention studies. This multi-site intervention study was large-scale and methodologically complex

for the field of psychogeriatrics. One of the methodological limitations was the partial 'blindness' of the assessors on the wards: although these persons did not know which residents were selected for the effect study, they did know of course whether the ward received the experimental or the control intervention. This created a risk of biased assessments on the experimental wards. Bringing in external assessors from outside the nursing home was not feasible. Such assessors' unfamiliarity with the nursing home, the staff and the residents would have impeded the observation process too much. Furthermore, the sudden introduction of external assessors would probably have had an immediate effect on the behaviour of the residents. Using independent nursing assistants-assessors form other wards of the same nursing home proved a sound measure to be able to determine that the nursing assistants in the experimental group had not made systematically more positive assessments.

A second limitation of this study concerns the available measuring instruments. Most of the behaviour assessment instruments that are used in psychogeriatrics, were developed over the past decades in populations with mild to moderately severe dementia. However, half of the persons in our study were *severely* demented. The low scores on some of the instruments may be connected to this fact, and it is possible that this has resulted in a bottom effect. In addition, most of the available measuring instruments are intended for quantification of the need for assistance/care or to measure behaviour *problems*. Only few (parts of the) instruments measure positive behaviour, such as making contact and expressing positive emotions. To examine this behaviour, a qualitative study (based on participation observation) was conducted (Finnema *et al.*, 1998). This study demonstrated that integrated emotion-oriented care had a surplus value, as compared to usual care, for both the development of an adequate care relationship, and for maintaining an emotional balance. Residents also tended to be more open to social contacts. These results indicate how important it is to include positive behaviour in the assessment of care approaches. Because qualitative research is very labour-intensive, and generally not feasible in the case of large patient groups, we recommend that quantitative instruments be developed to measure this positive behaviour. One advantage of expanding the body of measuring instruments is that it becomes possible to obtain a broader view of the behaviour, and perhaps also of the experiences, of people with dementia.

Finally, until now we studied the results only for a diagnostic subgroup. However, we also gathered data on the other residents of the wards. It would be interesting to examine whether integrated emotion-oriented care has had a similar effect on the latter group, or on the total group of nursing home residents with dementia that are in need of assistance and/or care. For in general, no distinction will be made between diagnostic (sub)groups when integrated emotion-oriented care is implemented on a ward.

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