Evaluation of a TEACCH- and Music Therapy-Based Psychological Intervention in Mild to Moderate Dementia
A Controlled Trial

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Abstract. Background: A multicomponent psychological intervention designed to alleviate neuropsychiatric symptoms and to improve communication in mild to moderate dementia was evaluated in a controlled trial. Components were (1) TEACCH (Treatment and Education of Autistic and related Communication handicapped Children)-based cognitive-behavioral and environmental interventions adapted for dementia and (2) music therapy. Methods: In a Pre-post design, the treatment group \( n = 26 \) received the program for 6 months, whereas controls \( n = 23 \) participated in nonspecific occupational therapy. Statistical analyses included \( t \)-tests, effect sizes, and two-way ANOVAs. Results: Relative to controls, the treatment group showed partly significant reductions of agitation, aggression, apathy, and anxiety, and improvement of communication, emotional expression, and activity. Conclusion: The intervention can help to increase psychological well-being in patients with dementia.

Keywords: controlled trial, psychological Intervention, dementia, TEACCH, music therapy, neuropsychiatric symptoms, communication

Background

The pattern of symptoms found in dementia is related to an ongoing decrease of overall cognitive functioning and activities of daily living, the emergence of neuropsychiatric symptoms as well as often marked changes of personality and emotional responsiveness (see DSM-IV; APA, 1994; Frölich, Kratzsch, Ihl, & Förstl, 2000; Lyketsos et al., 2002).

Medications like acetylcholinesterase inhibitors and the NMDA-antagonist memantine can slow down the progression and temporarily delay cognitive decline (Förstl, 2006). In dementia, especially neuropsychiatric symptoms like depression, psychotic symptoms, anxiety, agitation, or depression frequently cause considerable suffering in patients and caregivers. Consequently, effective treatment for those symptoms is crucial, taking into account that they often respond well to both psychopharmacological and nonpharmacological approaches.

Psychological interventions have important functions in mild to moderate dementia helping to cope with cognitive deficits (Sitzer, Twamley, & Jeste, 2006), alleviate neuropsychiatric symptoms (Livingston et al., 2005), and reduce the distress of family caregivers (Gallagher-Thompson & Coon, 2007). Recent reviews provide good evidence for the effectiveness of cognitive-behavioral and psychoeducational interventions. Cognitive stimulation, reminiscence therapy, music therapy, and environmental modification therapy are moderately effective (NICE/SCIE, 2006[not in refs]; Fischer-Terworth, Probst, Glanzmann, & Knorr, 2009; Logsdon, McCurry, & Teri, 2007).

A screening of the literature makes evident that the vast majority of studies do not take into account the gradual deterioration of communicative capacities causing significant distress in both patients and caregivers (Murphy, Gray, & Cox, 2007). With the progressing disease, patients become less and less accessible on an interactional level, making it difficult to assess their opinions and wishes, and to let them participate actively in decision-making. Consequently, the improvement of communicational capability should be an important target of psychological interventions to achieve a better quality of life and mental well-being (Fischer-Terworth, 2010).
The current state of science points to a strong need of high-quality research in the following areas: (a) multicomponent interventions integrating different evidence-based approaches, (b) interventions targeting communicational issues, and (c) treatment of patients with moderate dementia living in institutional care units.

Based on results from recent research, we developed the multicomponent intervention program TEACCH- and music therapy-based interventions (TMI) to target neuropsychiatric symptoms, communicational and emotional capabilities, as well as the activity level of patients with mild to moderate dementia.

TEACCH (Treatment and Education of Autistic and related Communication handicapped Children; Schopler, Mesibov, & Hessay, 1995) is an approach designed for the treatment of children with autistic spectrum disorders shown to improve, for example, psychological symptoms and social communication (Panerai, Ferrante, & Zingale, 2002). TEACCH’s adaptation to the field of dementia makes sense when taking into account the striking overlap between dementia and autism. Both conditions are incurable, have a clear neurologic origin, and share a strong genetic component lacking a causal etiological model. Furthermore, they show considerable overlap in neuropsychiatric and neuropsychological symptoms, are associated with significant impairment in daily living and cause substantial psychological distress in family caregivers. TEACCH consists of guidelines and principles allowing the composition of individual interventions helping to regulate autistic people’s capacity to handle their social environment. The principles fit well into several core needs of people with dementia like (a) orientation in time and space, (b) visualized environments, (c) cognition-adjusted activities, (d) security and relief from existential anxiety, and (e) cooperation between family caregivers, mental health professionals, and staff members.

According to these needs, we created an approach based on structured teaching, an educationally and psychologically based cognitive-behavioral concept that helps to make situations less confusing, more predictable, coherent, and familiar.

As music can be seen as a distinct communication system exerting many effects at the behavioral and emotional level, we chose music therapy to be the core element of the intervention. Musical group activities can help to establish patterns of shared attention and to initiate communicational activities. Structured teaching offers a good basis for musical interventions since music itself has strong structuring properties offering a frame of time structure experienced on a sensory level (Fischer-Terworth, 2010; Probst, 2007).

The TEACCH- and music therapy-based interventions (TMI; Fischer-Terworth, 2010) consists of (a) a music-based group therapy, (b) structuring of daily living and therapy settings according to the structured teaching approach, (c) a care and therapy model especially fitting the needs of demented people including environmental modifications, psychoeducational staff training, and intensive family member-staff communication.

The aim of the scientific trial was to evaluate the effects of TMI in a controlled design based on the comparison of an intervention group (IG) with a control group (CG).

Hypotheses

Our hypotheses were

a) After the intervention there will be a stronger reduction of overall neuropsychiatric symptomatology in the IG in comparison with the CG. We additionally expected that this will become especially evident regarding the NPI subscores anxiety, depression, agitation, aggression and apathy.

b) We expected the intervention group to display a stronger improvement of communicational abilities, emotional expression, and activity levels compared to controls.

Methods

Participants

A group of 49 patients with a psychiatric diagnosis of mild or moderate Dementia of the Alzheimer’s Type (DAT), mixed DAT, and dementia of unknown etiology according to ICD-10-criteria were enrolled into the study. The participants of the IG were inhabitants of the special dementia care unit of the German Red Cross Seniorenzentrum Kaiserslautern, where 24 demented patients live together with other demented individuals (see Weyerer, Schäufele, & Hendlmaier, 2005) receiving 24-h care service. The patients constituting the CG lived in another unit of the same institution offering traditional integrated care (Weyerer et al., 2005) for demented and nondemented residents.

All patients enrolled into the study had previously been informed about the study and agreed to participate. Because impaired judgment is common in dementia, additional consent by a family member or the responsible person in charge was obligatory.

The criterion mild to moderate dementia was defined by scores on the Mini-Mental Status Test (MMST) reaching from 9 to 24 points and from the levels 3 to 6 in the Global Deterioration Scale (GDS-Reisberg; Reisberg, Ferris, De Leon, & Crook, 1982). 24 of the 26 patients in the IG and 20 of the 23 patients in the CG were unable to do the complete sequence of MMST items. However, in the 5 patients where complete testing was not possible because of unwillingness, distractibility, or agitation, the MMST scores of the completed items reached a total score of at least 9 points. Additional rating with the GDS-Reisberg confirmed the severity-based inclusion criterion. Exclusion criteria were severe dementia (MMST < 9; GDS = 7), suicidal ideation, severe aggression, blindness, and deafness.
In a two-group pre-post design, 26 patients were assigned to the IG and 23 patients to the CG. As the environmental conditions of the special dementia unit was an integral part of practicing the TEACCH approach, the patients of the IG had to be inhabitants of the unit.

Randomization was not possible because of the obligatory allocation of the IG patients, so that groups were parallelized according to demographic features, dementia diagnosis, comorbidity, and neuropsychiatric features. As T-tests and the $\chi^2$-test failed to reveal significant differences regarding pretest measures of MMST, NPI total scores and NPI subscores, the groups showed all in all sufficient parallelization (all $p > .10$). The only exception was the category of age, where a significant mean difference of 4.2 years was found between the groups ($p = .03$).

Pretest and posttest measures included neuropsychological assessment, structured interviews, and rating scales applied by a clinical psychologist. Between pretest and posttest assessment, patients of the IG participated in the group therapy for 6 months; controls received nonspecific, occupational interventions and were provided with standard care.

### Intervention

**Music-Based Group Therapy**

The group therapy comprised fixed and exchangeable components designed for typical symptom fluctuations depending on severity, course, and daily constitution. The group intervention took place once weekly with 6 to 10 participants ($M = 7.4$) joining the group. Because disease-related fluctuations in health state and motivation are common in dementia, participants sometimes refuse to take part in sessions. So we offered two session appointments a week on Monday 14 afternoon and Wednesday 11 morning to make sure that every patient receives treatment at least once weekly.

Music therapy as the component of the intervention’s core unit was a fixed element. Methods employed (Fischer-Terworth, 2010) included (a) singing together in group with the therapist accompanying at the piano, (b) playing elementary musical instruments (percussion instruments, drums, chimes), and (c) listening to biographically relevant music. Further components were music-based cognitive stimulation (reading of song lyrics, recognizing songs, recalling of lyrics) and goal-directed application of behavior-al techniques to initiate and facilitate musical behaviors. Between musical activities, units of cognitive stimulation like quizzes, word-association games, and semantic categorization exercises were inserted. In reminiscence-focused music therapy, songs triggered emotion-laden autobiographical memories. In everyday conversation the patients talked about their memories with each other and the therapist, who also raised questions eliciting the report of narratives and facilitating the recollection process.

**Structured Teaching**

Structured teaching (Probst, 2007), a classical TEACCH approach based on cognitive-behavioral principles (Probst,
Concomitant Environmental and Psychoeducational Interventions

The intervention took place in the special dementia care unit described above, offering environmental modifications adapted to the needs of people with dementia (Fischer-Terworth, 2010; Weyerer et al., 2005). Three staff members had received training in geropsychiatric nursing and therapy. Further psychoeducational staff training was provided before and during the 6 months through a program of 12 lessons in clinical geropsychology and through coaching provided by a psychologist in the everyday care process. Intensive family member-staff communication was realized by (a) providing basic information about dementia in two presentations for family members; (b) everyday availability of professional caregivers with geropsychiatric skills to answer family member’s questions and to provide counseling; and (c) a 60-min session of psychoeducational counseling for one close family member of each patient of the intervention group provided by a psychologist.

Outcomes and Measures

The selected main outcomes were (1) overall neuropsychiatric symptomatology based on the total score of the NPI and (2) the outcome cluster of social communication, emotional expression, and activity level, based primarily on the total score of the ICEA-D, an instrument described below. According to standard practice, cognitive functioning and dementia severity were measured with the MMST (Folstein, Folstein, & McHugh, 1975); severity was additionally rated by using the GDS-Reisberg (Reisberg et al., 1982).

Neuropsychiatric symptoms were assessed by the 10-item version of the Neuropsychiatric Inventory (NPI; Cummings et al., 1994), consisting of 10 subscales for the symptoms delusions, hallucinations, depression, euphoria, anxiety, agitation, aggression, motor disturbance, disinhibition, and irritability. Rating was done by a semistructured interview done by a psychologist with a professional caring person familiar with the patient.

For rating depression, the 15-item version of the Geriatric Depression Scale (GDS; Sheikh & Yesavage, 1986), a semistructured interview, was also administered.

Because no instrument to assess social communication, emotional expression, and activity was yet available, we developed the Inventory to Assess Communication, Emotional Expression and Activity in Dementia (ICEA-D; Fischer-Terworth, 2010). This tool is based on behavioral observation and consists of six rating scales related to different constituents of the relevant outcomes: (1) general ability to communicate with others, (2) quality of communicative response to the environment, (3) social interaction with professional caregivers, (4) social interaction with fellow patients, (5) activity level, and (6) ability to express emotions.

Ratings are based on the assessment of a psychiatrist or psychologist or on a semistructured interview done by the mental health professional, with a family member, family or professional caregiver doing the rating. Scores range from 0 to 4 points on each subscale (example Scale 3: “Social interaction with professional caregivers”; 0 = patient is totally apathetic; 4 = patient is looking for company of others and initiates conversation). Adding the subscores results in the ICEA-D total score of a maximum of 24 points. High scores

Table 2. TMI-Program

<table>
<thead>
<tr>
<th>Music therapy group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening unit (5–10 minutes): Introduction</td>
</tr>
<tr>
<td>Core intervention (30 min): Music therapy</td>
</tr>
<tr>
<td>Closing unit (5–10 min): summary of session</td>
</tr>
</tbody>
</table>

Structured teaching

Visual and time-related structuring

Structuring of group therapy sessions: music-related structuring

Concomitant environmental and psychoeducational interventions

Special dementia care in a unit for 24 patients with staff trained in geropsychiatric nursing

Psychoeducational staff training

a) 12 lessons in clinical geropsychology: basic facts on dementia

b) Psychological coaching and training on the job for acquiring strategies to deal with behavioral symptoms and communicational issues in everyday care

1) Providing basic information about dementia in two presentations

2) Everyday availability of staff to answer questions of family members

3) One 60-min session of psychoeducational counseling

2007), was realized by the following different structural variants:

a) **Visual structuring** of the living space and therapy setting included a room design according to the needs of demented patients, differentiated use of colors to make visual distinctions indicating living units and the use of pictures and photographs.

b) **Time-related structuring** was realized via activity-related schedules, clear communication about following events, and regular therapy sessions evoking a feeling of security and predictability and orientation in time. 45-minute group therapy sessions (7 patients) took place once weekly and were subdivided into three units (see Table #2). Furthermore, musical units like songs, refrains as well as melodic, rhythmic, and textural units offered structuring inherent in musical experience.

c) **Structuring according to cognitive skills** was realized by establishing therapy elements for patients with mild and moderate dementia as well by avoiding patients becoming consciously aware of their illness-related shortcomings and thus potentially eliciting depressive thought patterns.
are desirable, meaning high levels of communicational capacity, emotional expression, and activity.

To evaluate the acceptance and the effectiveness of the intervention by staff, two caregivers and one occupational therapist with training in geropsychiatric care participated in a semistructured interview. According to a self-designed interview guideline, questions were posed about the intervention’s impact on psychological and behavioral symptoms, communication, and effects on staff members’ well-being.

### Statistical Procedures

Statistical analysis was done with SPSS 15.0. The procedures comprised a comparison of means for dependent and independent samples (t-tests), and the calculation of pre-post and post-post effect sizes (Cohen’s $d$). Two-way analyses of variance (ANOVA) with repeated measures on factor Time were conducted to assess interaction effects between-factors Group and Time ($\alpha = 0.05$). Qualitative data were analyzed by using Mayring’s qualitative content analysis (Mayring, 2008[in refs 2000]).

### Results

#### Cognitive Functioning and Stage of Dementia

The results show a typical progression of the disease parallel to cognitive decline from pre to post. Means for the MMST scores dropped significantly in both groups, in the IG ($p < .05$) from 16.1 ($SD = 4.2$) to 13.9 ($SD = 6.7$), in the CG from 17.6 ($SD = 4.8$) to 13.1 ($SD = 9.3$) ($p < .01$). The two-way ANOVA does not show a significant interaction effect between factors group and time ($F = 1.59; p > .05$). Correspondingly, means for severity level in the GDS-
Reisberg deteriorate significantly, from 4.3 (SD = 0.8) to 5.2 (SD = 0.9) in the IG and from 4.1 (SD = 0.7) to 5.0 (SD = 1.4) in the CG (both groups 𝑝 < .01).

Neuropsychiatric Symptoms

The two-way ANOVA reveals a significant interaction effect between Group and Time for the total score of the NPI (𝐹 = 5.05; 𝑝 < .05). The means for total neuropsychiatric symptomatology in the IG show a nearly significant decrease from 21.7 to 18.0, 𝑝 = .06) from pre to post indicating marked improvement. In the CG means for NPI total increase from 20.8 to 25.6 (𝑝 > .05) displaying a worsening of symptoms. At posttest measuring there is a clear advantage for the IG (pre-pre: 𝑝 > .10) approaching statistical significance. 𝑝 = .07; 𝑑 = 0.54).

The ANOVA does not show significant interaction effects for delusions (𝐹 = 0.01), hallucinations (𝐹 = 0.36), anxiety (𝐹 = 1.52), euphoria (𝐹 = 1.00), and depression (𝐹 = 0.61; all measures 𝑝 > .05).

Scores for delusions and hallucinations between groups do not change or differ much between groups after the intervention (𝑝 > .05). Anxiety symptoms clearly decrease within in the IG, 𝑝 = .07), which also shows slight advantages relative to controls at posttest (𝑝 > .05; 𝑑 = 0.33). Depressive symptoms decrease in both groups, becoming evident in Geriatric Depression Scale (GDS) scores and NPI subscores (𝑝 > .05). Comparison of posttest results as well as ANOVA provide evidence for negligible group differences for depressive symptoms (𝑝 > .05).

Regarding behavioral symptoms, the ANOVA shows significant interaction effects between group and time in favor of the IG for all NPI subscores except disinhibition (𝐹 = 3.91; 𝑝 = .05), agitation or aggression (𝐹 = 6.04, 𝑝 < .01).

### Table 4. Differences in social communication, emotional expression, and activity levels by the ICEA-D in 26 dementia patients (intervention group) after 6 months of TEACCH- and music therapy-based psychological intervention

<table>
<thead>
<tr>
<th></th>
<th>ICEA-D</th>
<th>A-Com</th>
<th>Resp-E</th>
<th>SI-C</th>
<th>SI-P</th>
<th>Act-L</th>
<th>EE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-Pre</td>
<td>15.5</td>
<td>3.0</td>
<td>3.3</td>
<td>2.6</td>
<td>2.1</td>
<td>2.2</td>
<td>2.5</td>
</tr>
<tr>
<td>SD</td>
<td>4.0</td>
<td>0.9</td>
<td>0.7</td>
<td>0.8</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>M-Post</td>
<td>15.9</td>
<td>2.9</td>
<td>2.9</td>
<td>2.6</td>
<td>2.4</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>SD</td>
<td>3.9</td>
<td>0.9</td>
<td>1.0</td>
<td>0.6</td>
<td>1.1</td>
<td>0.7</td>
<td>0.8</td>
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<tr>
<td>CG</td>
<td></td>
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<td></td>
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<tr>
<td>M-Pre</td>
<td>14.1</td>
<td>3.4</td>
<td>3.0</td>
<td>2.3</td>
<td>1.6</td>
<td>1.9</td>
<td>2.0</td>
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<tr>
<td>SD</td>
<td>3.6</td>
<td>0.8</td>
<td>0.7</td>
<td>0.7</td>
<td>1.2</td>
<td>0.7</td>
<td>0.9</td>
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<tr>
<td>M-Post</td>
<td>11.3</td>
<td>2.8</td>
<td>2.4</td>
<td>1.7</td>
<td>1.3</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>SD</td>
<td>5.7</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>1.3</td>
<td>1.1</td>
<td>1.2</td>
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**Pre-post**

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<tr>
<th></th>
<th>𝑡-EG</th>
<th>𝑝</th>
<th>𝑡-KG</th>
<th>𝑝</th>
<th>𝐸𝑆-EG</th>
<th>𝐸𝑆-𝐾𝐺</th>
<th>𝐸𝑆-Net</th>
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<tr>
<td></td>
<td>0.41</td>
<td>&gt; 0.05</td>
<td>−3.35</td>
<td>𝑝 &lt; .01</td>
<td>0.08</td>
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<tr>
<td></td>
<td>−0.57</td>
<td>&gt; 0.05</td>
<td>−2.96</td>
<td>𝑝 &lt; .01</td>
<td>−0.11</td>
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<tr>
<td></td>
<td>−3.07</td>
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<td>−3.73</td>
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<td>−0.75</td>
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<tr>
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<tr>
<td></td>
<td>1.27</td>
<td>&gt; 0.05</td>
<td>−1.91</td>
<td>𝑝 &lt; .01</td>
<td>0.24</td>
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<tr>
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<td>1.90</td>
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<tr>
<td></td>
<td>0.21</td>
<td>&gt; 0.05</td>
<td>−1.69</td>
<td>𝑝 &lt; .01</td>
<td>0.04</td>
<td>−0.34</td>
<td>0.38</td>
</tr>
</tbody>
</table>

**Post-post**

|              | 3.33   | > 0.05| 1.38  | < .01 | 0.94  | 0.40  | 0.99   |
|              | 0.34   | > 0.05| 3.39  | < .01 | 0.09  | 0.40  | 0.89   |
|              | 1.38   | > 0.05| 3.15  | < .01 | 0.99  | 0.40  | 1.19   |
|              | 4.00   | > 0.05| 4.00  | < .01 | 0.89  | 0.40  | 1.05   |

**ANOVA**

|              | 6.96   | 4.11  | 0.77  | 4.40  | 4.50  | 7.83  | 2.27   |
|              | > .05  | < .05 | < .05 | < .05 | < .05 | < .01 | > .05  |

**Notes.** IG = intervention group; CG = control group; M-Pre, M-Post = means at pre and post measures; SD = standard deviation; 𝐸𝑆 = effect size 𝑑 (Cohen); ANOVA = analysis of variance. ICEA-D: total score ICEA-D; subscores ICEA-D: A-Com = general ability to communicate with others; Resp-E = quality of communicative response to the environment; SI-C = social interaction with professional caregivers; SI-P = social interaction with fellow patients, Act-L = activity level; EE = ability to express emotions. Pre-Post: means and standard deviation for IG and CG at pre and post measures; 𝑡-test paired samples; 𝐸𝑆-IG and 𝐸𝑆(CG): Pre-Post effect sizes IG and CG; 𝐸𝑆-Net: net effect pre-post; Post-Post: 𝑡-test for independent samples; Post-Post effect sizes; ANOVA: results for two-way ANOVA with repeated measures on factor time; interaction effects group × time, F and  𝑝: Levene Test 𝑝 < .01. Bold: significant results (α = 0.05; α = 0.01 or α = .001).
Symptoms related to motor disturbance, apathy (p < .05), and irritability (F = 9.41; p < .01), and irritability (F = 10.54; p < .01).

Symptoms related to motor disturbance, apathy (p < .05), and irritability (p < .01) decrease in the IG, though there is a marked increase in the CG. Posttest comparison of groups also shows clear advantages for the IG with post-post effect sizes ranging from d = 0.33 to d = 0.79. For the subscale agitation or aggression, pre-post comparison reveals significant improvements in the IG from 1.2 to 0.7 points (p < .05), indicating a reduction of agitated or aggressive behaviors. At the same time, in the CG scores deteriorate from 1.8 to 3.1 points (p > .05), demonstrating a significant advantage in favor of the IG at posttest comparison (p = .01; d = 0.79).

Social Communication, Emotional Expression and Activity Level

The ANOVA shows significant effects for the ICEA-D total score (F = 6.96; p < .01) and the subscores for general competence in social communication (F = 4.11; p = .05), social interaction with professional caregivers (F = 4.40; p < .05), social interaction with fellow patients (F = 4.50; p < .05), and activity level (F = 7.83; p < .01). These results indicate a clear increase in the IG relative to controls.

At posttest, the IG’s total score of ICEA-D is significantly higher compared to controls (p < .01; d = 0.94). Also the IG is higher on each subscale of the ICEA-D, on four subscales with significant results. For the subscores “Social interaction caregivers” (p < .01; d = 0.99), “Social Interaction fellow patients” (p < .01; d = 0.89), “Activity level” (p < .001; d = 1.19) and “Expression of emotions” (p = .001; d = 1.05) [sentence incomplete]. Posttest measures show substantial results indicating clear advantages in favor of the IG, as seen in the large effect sizes and significant results.

Interviews with Staff Members

The staff members made positive statements on the following aspects: (a) special dementia care milieu, (2) music therapy as a program component, (c) structured teaching giving the patients a feeling of security. The observed psychological effects were a brightening of mood, improvement of spatial orientation and motor control, less agitation and compulsiveness, as well as the facilitation of communication.

Discussion

Results

The present study evaluated the effects of a multicomponent psychological intervention on different symptom dimensions of dementia. A reduction of neuropsychiatric symptoms and an improvement in social communication, emotional expression, and activity levels could be shown following the intervention.

Despite the general progression of dementia, there was an improvement of overall mental well-being. At the same time, patients intensified their interactional activities with their environment and engaged in activities corresponding to their existing capabilities. Staff members and patients rated the intervention positively.

After the intervention both groups showed a 7.6 point difference of means on the NPI, although pretest ratings were nearly indistinguishable. This result indicates a clear reduction of neuropsychiatric symptoms with especially dramatic improvements in behavioral symptoms. Relief of symptoms through nonpharmacological interventions is crucial to patients, family members, and professional caregivers because behavioral disturbances lead to substantial impairment, and atypical antipsychotics should be considered only for severe behavior disorders.

In recent studies several components of TMI such as music therapy were shown to alleviate neuropsychiatric symptoms. TEACCH-based interventions in autistic children were shown to improve behavioral orientation, providing better predictability of subsequent events (Mesibov, Browder, & Kirkland, 2002).

Although anxiety decreased only in the intervention group, depression levels declined in both groups. According to clinical observations, depression frequently drops in intensity when dementia progresses. On the other hand, depression in moderate dementia may present differently than depression in mild dementia. In moderate dementia, depression often exhibits with apathy, low energy, and a lack of emotional responsiveness, with apathy generally responding to treatment.

Psychotic symptoms did not respond to the intervention. Severe psychotic symptoms in dementia still seem to require antipsychotic medication.

Patients in the intervention group show a statistically significant improvement in communication- and emotion-related outcomes relative to controls. The calculation of the mean effect size for the subscales almost reaches the level of large effect sizes (M-d = 0.77), parallel to the reports of staff members of better interactional skills, communicative behavior, and affective responsiveness. With improved communication, demented people can express their wishes more clearly – and perhaps they even can better participate in making decisions concerning their lives. An improved social communication capability has been demonstrated in autistic individuals following involvement in TEACCH-based interventions (Panerai et al., 2002) and in demented patients treated by music therapy. Cognitive-behavioral structuring of daytime schedules and activities as well as music therapy can result in lower apathy levels (Fischer-Terworth, 2010).

In both groups cognitive functions declined over the period of evaluation, which is common for dementia.
Methodological Considerations

The present intervention was evaluated in a controlled trial with groups sufficiently parallelized. The exception is the significant difference in the patients’ mean age of 4.2 years. Because of an age-dependent increase in multimorbidity, the higher age of the control group’s patients may have indirectly negatively affected the progression of their dementia compared to the intervention group. Yet age of onset of symptoms – not general age – is generally seen as the crucial marker predicting the course of dementia. General age is far less important because the pathology of dementia affecting cognition, psychopathology, and behavior is fundamentally different from the decline found in normal aging (Förstl, 2006).

There are restrictions in validity due to nonrandomized samples, the relatively small number of patients, and different sample sizes. Furthermore, the outcome measures Mini Mental Status Test and Geriatric Depression Scale could not be completed with all of the 49 patients because of typical behavioral symptoms like agitation, distractibility, and unwillingness to comply with the assessment situation. Because this restriction in an inevitable shortcoming that frequently occurs in the assessment of moderately demented patients in institutional care, we tried to at least partially compensate for the biases through the additional use of rating instruments like the Global Deterioration scale (severity) and the subscale for depression in the neuropsychiatric inventory. Furthermore, the crucial outcomes of the present trial were neuropsychiatric symptoms and the ones measured by the ICEA-D.

Conclusion

Psychological interventions for dementia should not aim to restitute lost neuropsychological functions; rather, they should enable the patient to maintain an acceptable quality of life despite all restrictions. The capability of experiencing pleasure and positive emotions presumes relief from psychological disturbances. Additionally, an improvement in communicational skills is crucial to the patients in order to stay in touch with their environment and to maintain a certain degree of self-directed participation in life.

Like autistic individuals, people with dementia need a familiar environment, an adapted level of sensory stimulation, structuring rituals, and the opportunity to know what’s going on around them. The study shows that a program consisting of evidence-based psychological interventions is superior to nonspecific occupational therapy in influencing different symptom clusters of dementia. This stresses the necessity to develop and evaluate specially tailored interventions for exactly defined indications to implement in the clinical field and in institutional care. To assess symptom clusters more accurately and to determine treatment indications more reliably, it will be necessary to develop diagnostic instruments for symptoms such as dementia-associated depression and various forms of anxiety in moderate dementia as well as for communicational and emotional issues.

References


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