**Supplementary tables and figures**

**Supplementary Figure S1**

**Flowchart of the participants.**

Excluded; n = 19

(Not meeting inclusion criteria; n = 6,

Declined after receiving information; n = 13)

**Control group**

**Intervention group**

Assessed for eligibility: N = 75

Assessed for eligibility: n = 192

Excluded; n= 47

(Not meeting

 inclusion criteria; n= 47)

T1; n = 56

T1; n = 145

Declined to participate without giving reason why; n = 1

Declined to participate without giving reason why; n = 20)

Declined to participate without giving reason why; n = 1

Patient institutionalized; n = 1

Patient deceased; n = 1

Declined to participate without giving reason why; n = 5

Patient institutionalized; n = 3

Patient deceased; n = 5

Declined to participate without giving reason why; n = 8

Patient institutionalized; n = 14

Patient deceased; n = 12

Intervention; n = 145

T2; n = 53

T2; n = 144

T3; n = 43

T3; n = 125

Declined to participate without giving reason why; n = 33

Patient institutionalized, n = 24

Patient deceased, n = 23

Analysed (intention to treat); 145 + 56 = 201 participants

T4; n = 22

T4; n = 65

|  |
| --- |
| Supplementary Table S1.*Differences at baseline between participants lost to follow-up and those who completed T3.* |
|  | Experimental group | Control group |
|  | T3 completers(*n =* 125) | Drop-out before T3(*n =* 20) | Test-value† | *p-value* | T3 completers(*n =* 43) | Drop-out before T3(*n =* 13) | Test-value† | *p-value* |
| **Characteristics informal caregivers** |
| Age, mean ± SD | 59.5 ± 11.8 | 60.3 ± 13.1 | -0.278 | .781 | 64.7 ± 10.8 | 60.9 ± 15.0 | 1.018 | .313 |
| Sex, %male | 20.3% | 22.7% | NA | .779 | 24.4% | 18.2% | NA | 1.00 |
| Level of education‡ | LowMediumHigh | 17.1%34.1%48.8% | 9.1%45.5%45.5% | 1.295 | .494 | 13.3%35.6%51.1% | 9.1%36.4%54.5% | 0.181 | 1.00 |
| Hours providing care a week, M ± SD | 46.8 ± 61.4 | 49.5 ± 53.2 | -0.188 | .851 | 78.1 ± 67.9 | 80.4 ± 58.8 | -0.112 | .911 |
| Relationship with the patient | %spouse%child%other | 33.6%48.4%18.0% | 50.0%36.4%13.6% | 2.030 | .392 | 56.6%40.0%4.4% | 45.5%45.5%9.1% | 1.081 | .693 |
| Co-residence with the patient (%yes) | 30.6% | 40.9% | 0.910 | .457 | 60.0% | 45.5% | NA | .501 |
| **Characteristics persons with dementia** |
| Age, mean ± SD | 79.2 ± 8.1 | 76.4 ± 10.5 | 1.324 | .188 | 77.2 ± 7.6 | 81.0 ± 8.6 | -1.542 | .129 |
| Sex (%male) | 43.0% | 40.9% | 0.032 | .857 | 47.7% | 45.5% | 0.018 | .893 |
| Dementia diagnosis | %AD%VaD%PD%other%NDD | 59.3%13.8%2.4%6.5%17.9% | 59.1%27.3%0%13.6%0% | 3.191 | .479 | 58.5%24.4%2.4%4.9%9.8% | 60.0%20.0%0%20.0%0% | 1.757 | .876 |
| Time since diagnosis in years, mean ± SD | 3.4 ± 2.6 | 3.4 ± 2.6 | 0.014 | .988 | 2.6 ± 2.3 | 2.5 ± 2.0 | 0.262 | .795 |
| **Baseline scores on the questionnaires** (M ± SD) |
| IRI PT | 17.8 ± 3.9 | 17.2 ± 4.8 | 0.604 | .547 | 17.0 ± 4.2 | 18.5 ± 5.0 | -1.034 | .306 |
| IRI EC | 17.6 ± 4.4 | 18.7 ± 4.2 | -1.034 | .303 | 17.5 ± 3.8 | 18.6 ± 4.2 | -0.896 | .374 |
| HADS-D | 4.6 ± 4.0 | 6.2 ± 5.1 | -1.595 | .113 | 5.2 ± 3.4 | 6.6 ± 3.6 | -1.334 | .188 |
| HADS-A | 5.8 ± 3.7 | 8.3 ± 3.8 | -2.940 | .004\* | 7.2 ± 4.0 | 9.5 ± 5.0 | -1.595 | .117 |
| CRA-Disruption | 2.8 ± 0.9 | 2.9 ± 1.1 | -0.425 | .671 | 3.4 ± 0.8 | 3.8 ± 0.8 | -1.775 | .082 |
| CRA-Health | 2.3 ± 0.7 | 2.7 ± 1.0 | -1.456 | .158 | 2.8 ± 0.9 | 3.5 ± 0.8 | -2.174 | .034\* |
| CRA-Support | 2.3 ± 0.8 | 1.9 ± 0.9 | 2.131 | .035\* | 2.7 ± 0.8 | 2.7 ± 0.7 | 0.110 | .913 |
| CRA-Self-esteem | 3.8 ± 0.6 | 3.8 ± 0.5 | 0.119 | .906 | 3.7 ± 0.6 | 3.6 ± 0.7 | 0.787 | .435 |
| CRA-Finances | 2.3 ± 0.6 | 2.5 ± 0.6 | -1.269 | .207 | 2.6 ± 0.8 | 2.5 ± 1.0 | 0.572 | .570 |
| RQI | 31.6 ± 8.1 | 31.3 ± 7.2 | 0.158 | .875 | 29.5 ± 8.6 | 29.2 ± 9.4 | 0.128 | .899 |
| QoR-current | 13.4 ± 2.6 | 12.2 ± 3.9 | 1.292 | .211 | 13.7 ± 2.9 | 12.5 ± 3.2 | 1.330 | .189 |
| SSCQ | 27.6 ± 4.8 | 25.4 ± 5.9 | 1.819 | .071 | 24.6 ± 5.5 | 22.7 ± 5.4 | 1.091 | .280 |
| *Note.* AD = Alzheimer’s dementia, VaD = Vascular Dementia, PD = Dementia associated with Parkinson’s Disease, NDD = No Differential Diagnosis, IRI = Interpersonal Reactivity Index, PT = Perspective Taking, EC = Empathic Concern. HADS-D/A = Hospital Anxiety and Depression Scale, subscale Depression/Anxiety, CRA = Caregiver Reaction Assessment, RQI = Relationship Quality Index, QoR-current = current Quality of the Relationship, SSCQ = Short Sense of Competence Questionnaire.†Test-values for continuous outcome were t-values, for categorical values; Pearson Chi2 values. If cell count < 5, the p-value of the Fisher’s exact test (2 categories) or Fisher-Freeman-Halton Exact Test (>2 categories) is presented. The number of participants differ per variable due to missing values. ‡Educational level according to Verhage[35], recoded into low (1-4), medium (5), high (6-7).\* < .05, \*\*p < .001 |

|  |
| --- |
| Supplementary Table S2.*Differences at baseline between participants lost to follow-up and those who completed T4* |
|  | Experimental group | Control group |
|  | T4 completers(*n =* 65) | Drop-out before T4(*n =* 80) | Test-value† | *p-value* | T4 completers(*n =* 22) | Drop-out before T4(*n =* 34) | Test-value† | *p-value* |
| **Characteristics informal caregivers** |
| Age, mean ± SD | 58.5 ± 12.7 | 60.5 ± 11.3 | -0.967 | .335 | 63.6 ± 10.5 | 64.0 ± 12.8 | -0.144 | .886 |
| Sex, %male | 23.4% | 18.5% | NA | .538 | 13.6% | 29.4% | NA | .210 |
| Level of education‡ | LowMediumHigh | 8.0%37.5%54.5% | 22.2%34.6%43.2% | 5.741 | 0.057 | 18.2%45.5%36.3% | 8.9%29.4%61.7% | 0.168 | .186 |
| Hours providing care a week, M ± SD | 45.3 ± 59.5 | 48.7 ± 60.9 | -0.332 | .740 | 80.3 ± 65.5 | 77.5 ± 66.3 | -0.158 | .875 |
| Relationship with the patient | %spouse%child%other | 37.5%43.8%18.7% | 35.0%48.8%16.2% | 0.381 | .827 | 59.2%31.8%9% | 50.0%47.0%3% | 1.904 | .386 |
| Co-residence with the patient (%yes) | 33.3% | 31.3% | 0.070 | .791 | 63.6% | 52.9% | 0.624 | .430 |
| **Characteristics persons with dementia** |
| Age, mean ± SD | 79.0 ± 8.3 | 78.7 ± 8.6 | 0.168 | .867 | 75.8 ± 7.5 | 79.7 ± 8.0 | -1.823 | .074 |
| Sex (%male) | 42.2% | 43.0% | 0.010 | 1.00 | 59.1% | 39.4% | 2.055 | .152 |
| Dementia diagnosis | %AD%VaD%PD%other%NDD | 60.9%18.8%0.0%3.1%17.2% | 58.0%13.6%3.7%7.4%17.3% | 4.212 | .378 | 55.0%25.0%5.0%5.0%10.0% | 61.3%22.6%0.0%3.2%12.9% | 1.847 | .764 |
| Time since diagnosis in years, mean ± SD | 3.4 ± 2.8 | 3.4 ± 2.4 | 0.121 | .904 | 3.1 ± 2.9 | 2.3 ± 1.7 | 1.315 | .194 |
| **Baseline scores on the questionnaires** (M ± SD) |
| IRI PT | 17.8 ± 4.0 | 17.5 ± 4.0 | 0.560 | .576 | 17.6 ± 5.3 | 17.2 ± 3.9 | 0.350 | .728 |
| IRI EC | 17.5 ± 4.6 | 18.0 ± 4.2 | -0.627 | .532 | 17.7 ± 3.7 | 17.8 ± 4.0 | -0.167 | .868 |
| HADS-D | 5.0 ± 4.2 | 4.8 ± 4.3 | 0.278 | .783 | 4.8 ± 3.4 | 5.9 ± 3.5 | -1.189 | .240 |
| HADS-A | 6.4 ± 3.9 | 6.0 ± 3.8 | 0.693 | .489 | 7.7 ± 4.3 | 7.9 ± 4.3 | -0.194 | .847 |
| CRA-Disruption | 2.9 ± 0.9 | 2.9 ± 0.9 | 0.313 | .755 | 3.5 ± 0.7 | 3.4 ± 0.9 | 0.373 | .711 |
| CRA-Health | 2.4 ± 0.8 | 2.4 ± 0.8 | -0.198 | .843 | 2.8 ± 1.0 | 3.1 ± 0.9 | -1.1919 | .239 |
| CRA-Support | 2.3 ± 0.9 | 2.3 ± 0.7 | 0.004 | .997 | 2.9 ± 0.8 | 2.6 ± 0.8 | 1.407 | .165 |
| CRA-Self-esteem | 3.8 ± 0.6 | 3.8 ± 0.6 | 0.921 | .359 | 3.8 ± 0.5 | 3.6 ± 0.7 | 0.991 | .326 |
| CRA-Finances | 2.3 ± 0.7 | 2.3 ± 0.6 | -0.340 | .734 | 2.9 ± 0.7 | 2.4 ± 0.9 | 2.114 | .039\* |
| RQI | 31.9 ± 8.4 | 31.3 ± 7.6 | 0.380 | .705 | 28.8 ± 9.2 | 29.8 ± 8.5 | -0.4212 | .682 |
| QoR-current | 13.4 ± 2.7 | 13.1 ± 3.0 | 0.622 | .535 | 13.4 ± 3.3 | 13.4 ± 2.9 | -0.004 | .997 |
| SSCQ | 27.5 ± 5.0 | 27.1 ± 5.0 | 0.507 | .613 | 23.7 ± 6.5 | 24.4 ± 4.8 | -0.503 | .617 |
| *Note.* AD = Alzheimer’s dementia, VaD = Vascular Dementia, PD = Dementia associated with Parkinson’s Disease, NDD = No Differential Diagnosis, IRI = Interpersonal Reactivity Index, PT = Perspective Taking, EC = Empathic Concern. HADS-D/A = Hospital Anxiety and Depression Scale, subscale Depression/Anxiety, CRA = Caregiver Reaction Assessment, RQI = Relationship Quality Index, QoR-current = current quality of the relationship, SSCQ = Short Sense of Competence Questionnaire. †Test-values for continuous outcome were t-values, for categorical values; Pearson Chi2 values. If cell count < 5, the p-value of the Fisher’s exact test (2 categories) or Fisher-Freeman-Halton Exact Test (>2 categories) is presented. The number of participants differ per variable due to missing values. ‡Educational level according to Verhage[35], recoded into low (1-4), medium (5), high (6-7).\* < .05, \*\*p < .001 |

|  |
| --- |
| Supplementary Table S3.*RCI’s for all outcome measures and both groups, T1-T4* |
|  | Intervention group | Control group |
|  | Number reliably changed (negatively) | Number reliably changed (positively) | Number reliably changed (negatively) | Number reliably changed (positively) |
| IRI PT | 7 (of 62) | 2 (of 62) | 0 (of 20) | 1 (of 20) |
| IRI EC | 2 (of 60) | 4 (of 60) | 1 (of 20) | 1 (of 20) |
| HADS-D | 7 (of 65) | 3 (of 65) | 4 (of 20) | 1 (of 20) |
| HADS-A | 5 (of 66) | 1 (of 66) | 4 (of 20) | 1 (of 20) |
| CRA Disruption | 4 (of 63) | 2 (of 63) | 0 (of 21) | 0 (of 21) |
| CRA Health | 4 (of 65) | 1 (of 65) | 2 (of 21) | 0 (of 21) |
| CRA Support | 3 (of 65) | 2 (of 65) | 0 (of 19) | 0 (of 19) |
| CRA Self-esteem | 6 (of 62) | 1 (of 62) | 2 (of 20) | 1 (of 20) |
| CRA Finances | 5 (of 62) | 1 (of 65) | 2 (of 21) | 2 (of 21) |
| RQI | 4 (of 56) | 1 (of 65) | 1 (of 20) | 1 (of 20) |
| QoR-current | 5 (of 510) | 1 (of 51) | 2 (of 18) | 0 (of 18) |
| SSCQ | 0 (of 63) | 2 (of 63) | 1 (of 21) | 1 (of 21) |
| Note. IRI = Interpersonal Reactivity Index, PT = Perspective Taking, EC = Empathic Concern, HADS = Hospital Anxiety and Depression, CRA = Caregiver Reaction Assessment, RQI = Relationship Quality Index, QoR-current = Quality of the Relationship, SSCQ = Short Sense of Competence Questionnaire. RCI’s were based on a 90% confidence interval. All scores were recoded so that a negative change indicates change for the worse, e.g. less empathy, more depression, more burden; and positive change indicated change for the better, e.g. less depression, more empathy etc. |