Effectiveness and efficiency of community occupational therapy for older people with dementia and their caregivers

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Overview presentation

Evidence based OT: (PhD Thesis)
“Effectiveness & efficiency of community occupational therapy for older people with dementia and their caregivers”

Aim OT and case study
“Occupational therapy at home for older people with dementia and their caregivers”
Introduction: dementia

What is known?

- Major driver costs
- 1% 65-year olds, 40% 85-year olds
- Increase future prevalence
- Drugs not successful
- Dependence and burden
- Treatment moves towards improving daily functioning, quality of life & decreasing caregiver burden!
Aim of Occupational Therapy in dementia

Improve patients and informal caregivers:

- daily functioning
- skills in dealing with consequences of dementia
- autonomy
- quality of life

Improve caregivers:

- Competence
- Decrease of caregiver burden
Occupational therapy: training patient: tailor-made!

- Teaching patients to act in their optimal way in meaningful daily activities:
  - with use of:
    - compensatory strategies
    - adaptations in physical & social environment
Occupational therapy: training caregiver tailor-made!

- Practical & emotional support to primary caregivers:
  - practical instructions
  - ways approaching patient
  - how to adapt physical environment
  - coping strategies: burden of care & retain autonomy
Evidence found:

Community occupational therapy improved:

- daily functioning in dementia patients &
- sense of competence in caregivers!

BMJ, 2006
Evidence found:

Community occupational therapy improved:
- quality of life (overall)
- mood
- health status
in dementia patients & caregivers!

Tertiary research question

- Is community occupational therapy cost-effective from societal perspective?
Evidence found

Significant savings after 3 months occupational therapy at home

1750 euro per successful treatment of dementia patients and caregivers!

Graff et al., BMJ, January 2008
How did we come to this evidence?

MRC framework (Campbell & Campbell, 2000; 2007)

- **Preclinical**
  - Explore relevant theory to ensure best choice of intervention and Hypothesis and to predict major confounders and strategic design issues

- **Phase I**
  - Identify the components of the intervention and the underlying mechanisms by which they will influence outcomes to provide evidence that you can predict how they relate to and interact with each other

- **Phase II**
  - Describe the constant and variable components of a replicable intervention and a feasible protocol for comparing the intervention with an appropriate alternative

- **Phase III**
  - Compare a fully defined intervention with an appropriate alternative using a protocol that is theoretically defensible, reproducible, and adequately controlled in a study with appropriate statistical power

- **Phase IV**
  - Determine whether others can reliably replicate your intervention and results in uncontrolled settings over the long term

**Continuum of increasing evidence**
A) Development OT guideline:

Method effective guideline development (Grol, 1994/2004; Campbell, 2000)

- Literature review
- Consulting external experts
- Reflection on OT performance
- Panel of experts
- Evaluation of quality and usefulness

(Graff et al, Ned Tijdschr Ergother, 2000)
Evidence based guideline development

Evaluation of quality and usefulness guideline:
- Panel of experts
- OT’s working in geriatrics
- OT teachers
- Students

Conclusion: good quality and usefulness!
B) Qualitative research: (case study analyses)

What is the contents, context and process of community occupational therapy in older people with dementia and their caregivers (as OT’s treat according to the guideline)?

(Graff et al, Dementia, 2006)
B) Qualitative research: case study analyses:

Global categories:
- Dependence/problems in daily functioning client
- Feeling helpless/ problems in communication caregiver

Specific categories:
- Daily functioning: skills & need for assistance client
- Sense of competence caregiver (decrease burden)
- Pleasure in activities (quality of life)
- Accomplishments (positive or negative feedback is related to mood)

(Graff et al, Dementia, 2006)
Case Richard and Anne
C) Pilot study: feasibility assessment protocol

Results:
1) good practical usefulness assessment protocol: opinion clients with dementia & caregivers (n=12)

2) positive significant changes on central outcomes:
   • daily functioning clients with dementia
   • sense of competence caregivers after 10 visits OT at home 
   (Graff et al., OTR, 2003)
Is OT at home for dementia patients and caregivers effective?
D) Research design RCT

• Recruitment:
  - Outpatient Memory Clinic
  - Geriatric Department

• Inclusion:
  - mild & moderate dementia
  - living at home
  - supportive primary caregiver
D) Research design RCT

- exclusion:
  - severe dementia
  - depression
  - severe psychiatric disabilities & other disturbing diseases
  - no occupational therapy goals
D) Research design RCT:

Randomisation by independent statistician

In envelopes:
- sequentially numbered
- opaque
- sealed
- in locked filing cabinet in secretary
D) Research design RCT

Blinded were:
- Assessors
- Data analyses during data entry

Maintenance of blinding:
- Verbal & written information at baseline & before measurements to patients and caregivers
- Diary of therapists in locked filing cabinet
D) Research design

• Intervention group:
  5 weeks two times a week occupational therapy (OT) at home

• Control group:
  - group on hold: no OT during trial
  - same OT intervention as experimental group, after 3 months
Randomised controlled trial:

Primary outcomes:
• Daily functioning patients
  (AMPS process skills & IDDD need for assistance in daily activities)

2. Sense of competence caregivers
  (Sense of Competence Questionnaire)

(Graff, et al., BMJ, 2006)
Secondary outcomes

Patients and caregivers:

a) Quality of life
   Dementia Quality of Life Scale: DQoL

b) Health Status
   General Health Questionnaire (GHQ-12)

c) Mood
   Cornell Scale for Depression (CSD) and Center for Epidemiologic Studies Scale (CES-D)

Caregivers:

d) Sense of Control over life
   Mastery scale

Graff et al., J Gerontol Med Science 2007
Analysis of covariance

Covariates:

- **Demographic variables**: (age, gender, education, relation caregiver - patient)
- **Co-morbidity** (CIRS-G)
- **Memory** (MMSE)
- **Depression** (GDS)
- **Behavioral problems** (RMBP-C)
- **Other caregivers** (added or left)
- **Baseline scores** (on DQOL, CSD, CES-D, GHQ, Mastery Scale)
## Baseline characteristics pt & cg

<table>
<thead>
<tr>
<th></th>
<th>Intervention (n=68)</th>
<th>Control (n=67)</th>
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<tbody>
<tr>
<td>Mean age (sd) in years:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- patiënt</td>
<td>79.1 (6.2)</td>
<td>77.1 (6.3)</td>
</tr>
<tr>
<td>- caregiver</td>
<td>66 (15.3)</td>
<td>61 (15.4)</td>
</tr>
<tr>
<td>Gender pt: woman (man)</td>
<td>39 (29)</td>
<td>36 (31)</td>
</tr>
<tr>
<td>Gender cg: woman (man)</td>
<td>46 (22)</td>
<td>49 (18)</td>
</tr>
<tr>
<td>Memory (MMSE)</td>
<td>19 (sd 5.7)</td>
<td>19 (sd 4.0)</td>
</tr>
<tr>
<td>Comorbidity (CIRS-G)</td>
<td>10.7 (sd 3.5)</td>
<td>11.6 (sd 4.3)</td>
</tr>
<tr>
<td>Depression (GDS)</td>
<td>6.9 (sd 3.0)</td>
<td>7.5 (sd 3.0)</td>
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<tr>
<td>Behavior (RMBPC-freq)</td>
<td>5.6 (sd 5.3)</td>
<td>5.0 (sd 6.0)</td>
</tr>
<tr>
<td>Relation cg to pt:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- partner</td>
<td>41</td>
<td>38</td>
</tr>
<tr>
<td>- daughter</td>
<td>22</td>
<td>21</td>
</tr>
</tbody>
</table>
Patient & caregiver flow through trial

N=135

OT
T0: N=68
T1: N=58
T2: N=53
N=114

Controls
T0: N=67
T1: N=56
T2: N=52
N=105
Dropout /incomplete data

- Drop-outs & withdrawals: equally divided over OT group and controls
- N= 3 stopped before baseline (1 OT group, 2 controls)
- Intention to treat analysis (LOCF): N=132
AMPS process skills in IADL (n=135)

- Mean & 95% confidence interval (CI) in OT group vs controls:
  1) at baseline (t0)
  2) 6 weeks (t1)
  3) 12 weeks (t2)
- AMPS range = -3 to 4
- Cut-off point = 1.0 for independent living

- Occupational therapy group

- Controls
Need for assistance (IDDD-performance) (N=135)

- Mean & 95% CI in OT group vs controls:
  1) at baseline
  2) 6 weeks
  3) 12 weeks

- IDDD-performance range = 0-44

= Occupational therapy group
= Controls
Sense of Competence caregivers (N=135) (SCQ, Vernooij-Dassen 1996)

- Mean & 95% CI in OT group vs controls:
  1) at baseline
  2) 6 weeks
  3) 12 weeks

- Range SCQ = 27-135

- = Occupational therapy group
- = Controls
CONCLUSION

- At 12 weeks effect remained: effect of training of the caregiver!

Graff et al, BMJ, 2008
D2) Third research question: occupational therapy cost-effective?

Significant savings after 3 months occupational therapy at home

1750 euro per successful treatment!

Graff et al., BMJ, January 2008
Occupational therapy is cost-effective!

Effects: successful treatment = (clinically relevant difference on all three primary outcomes together):
- AMPS and
- IDDD and
- SCQ

Costs health care usage =
- total of health care used per couple (of patient and caregiver) assessed with care diary
Occupational therapy is cost-effective!

Savings on:
- informal care hours
- hours home care
- hours day care

compared to controls

Graff et al., BMJ, 2008
Health policy in dementia care

1) Future treatment in dementia focus on improvement of:

• daily functioning & quality of life of patients and caregivers,
• and sense of competence & mastery caregivers

2) Include community occupational therapy in regular dementia care!
Evidence based OT in dementia patients and caregivers: MRC model

1. Theoretical phase: theory based guideline development
2. Modeling fase: case study analysis + model
3. Exploratory trial phase: pilot study
4. RCT-phase: effectiveness + cost effectiveness study

PhD thesis

5. Implementation phase: pilot and RCT (effectiveness & cost-effectiveness implementation)
How to evaluate complex interventions?

MRC framework (Campbell & Campbell, 2000; 2007)

- **Preclinical**
  - Theory: Explore relevant theory to ensure best choice of intervention and hypothesis and to predict major confounders and strategic design issues.

- **Phase I**
  - Modelling: Identify the components of the intervention and the underlying mechanisms by which they will influence outcomes to provide evidence that you can predict how they relate to and interact with each other.

- **Phase II**
  - Exploratory trial: Describe the constant and variable components of a replicable intervention and a feasible protocol for comparing the intervention with an appropriate alternative.

- **Phase III**
  - Definitive randomised controlled trial: Compare a fully defined intervention with an appropriate alternative using a protocol that is theoretically defensible, reproducible, and adequately controlled in a study with appropriate statistical power.

- **Phase IV**
  - Long term implementation: Determine whether others can reliably replicate your intervention and results in uncontrolled settings over the long term.

*Continuum of increasing evidence*
E) Pilot implementation research

What are the facilitators and barriers of implementing this OT guideline in the Netherlands?

- Occupational therapists
- Physicians
- Management

*Van 't Leven, Graff, submitted 2009*
E) Implementation research

Recent study:

Experimental implementation strategy directed on:
- Occupational therapists
- Physicians
- Management

Control strategy:
- Usual post-graduate education strategy

Van 't Leven, Graff, submitted 2009
Thank you for your attention!
Maud JL Graff

Order PhD Thesis?
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