

# Economic evaluation of unsupported computerised cognitive behavioural therapy for depression

Sylvia Gerhards

L.E. de Graaf, L.E. Jacobs, J.L. Severens, M.J.H. Hulbers, A. Arntz, H. Riper, G. Widdershoven, J.F.M. Metsemakers, S.M.A.A. Evers

Maastricht University  
Department of Clinical Psychological Science



## Objective

Examine the cost-effectiveness of computerised cognitive behavioural therapy (CCBT) compared with treatment as usual by a GP (TAU), and with a combination of both CCBT and TAU (COMBI) for depression



## Depression

- High prevalence
- Impacts quality of life
- High costs
- Undertreatment



## CCBT

- Previous research on effectiveness
  - Effectiveness of CCBT is promising (Kaltenthaler et al., 2006)
  - Supported CCBT vs CCBT without support
- Limited evidence on cost-effectiveness in favour of CCBT



## Design of the trial

- Randomised trial:
  1. CCBT
  2. TAU by a GP
  3. CCBT and TAU (COMBI)
- Participants:
  - Recruitment in general population
  - In/exclusion criteria (f.i. BDI-II score  $\geq 16$ , age 18-65 years)
- Assessments:
  - Baseline, 2, 3, 6, 9 and 12 months: depressive severity, quality of life, productivity & disease
  - Monthly: health care use
  - Track-and-trace system: usage of CCBT




## CCBT




- Colour-your-life\*
- Online program
- Based on cognitive behavioural therapy
- Self-help without assistance
- 8 sessions and 1 booster session
- 13 homework assignments
- Mood diary
- Patient forum
- Audio, video, and text
- Effective in people over 50 years old with sub-threshold depression (Spek et al., 2007)

\* Developed by Riper & Kramer (2004) from the Trimbos-institute


Background Trial design Analysis Results Conclusion 

## TAU

- Treatment as usual by a GP
  - Depression Guideline Dutch College of General Practitioners
    - 4-5 biweekly consultations
    - Combined with antidepressant if indicated
    - If necessary: referral to mental health care specialist


Background Trial design Analysis Results Conclusion 

## Flow of the trial participants



```

    graph TD
      A[Recruitment population  
N=217,816] --> B[Participated in screening  
N=23,139]
      B --> C[Assessed for eligibility  
N=412]
      C --> D[Randomly allocated  
N=303]
      D --> E1[CCBT  
N=100]
      D --> E2[TAU  
N=103]
      D --> E3[COMBI  
N=100]
      E1 --> F1[Data available  
12 months: N=88]
      E2 --> F2[Data available  
12 months: N=91]
      E3 --> F3[Data available  
12 months: N=88]
  
```

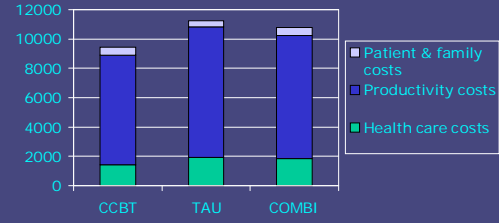
Background Trial design Analysis Results Conclusion 

## Analysis


- Societal perspective
- All costs
- 12 months
- Cost-utility & cost-effectiveness analysis (bootstrap re-sampling)
- Sensitivity analyses

Background Trial design Analysis Results Conclusion 

## Costs



Note: No correction for baseline costs

Background Trial design Analysis Results Conclusion 


## Costs

### Costs during 12-months follow-up

CCBT	TAU	COMBI
€9092	€9765	€10534

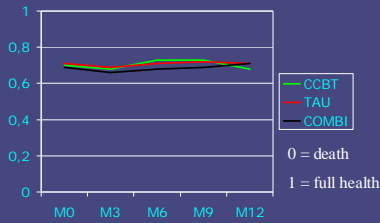
Note: Regression correction for baseline costs

- CCBT lowest costs in all sensitivity analyses
- COMBI highest costs when baseline regression correction
- TAU highest costs when no baseline regression correction

Background Trial design Analysis Results Conclusion 

## Quality of life

Utilities (EQ-5D, Dolan)



Note: No correction for baseline utility

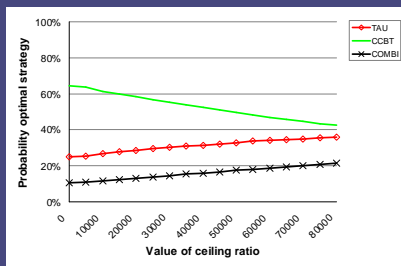
Background Trial design Analysis Results Conclusion

## Quality of life

- QALY (quality-adjusted life year, range 0.00–1.00) about 0.70
- Regression correction for baseline utility
- No significant group differences
- Similar results for sensitivity analyses

Background Trial design Analysis Results Conclusion

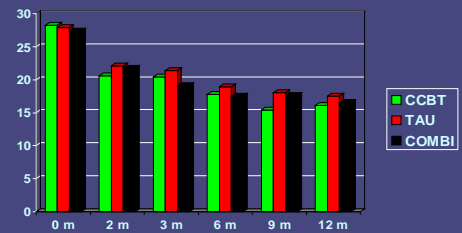
## Cost-utility



Background Trial design Analysis Results Conclusion

## Depression severity

BDI-II scores during follow-up



No differences (all  $p > .05$ ) between the interventions at each time-point (adjusted for baseline BDI-II) in the intention-to-treat population

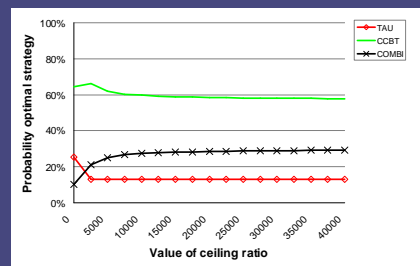
Background Trial design Analysis Results Conclusion

## Depression severity

	CCBT	COMBI	TAU
Baseline BDI-II score	28.2	27.4	27.9
Continuous change (mean pts improvement)	11.10 pts	10.47 pts	9.77 pts
Reliable change (i.e. 9 pts)	51.1 %	60.2 %	48.4 %

Background Trial design Analysis Results Conclusion

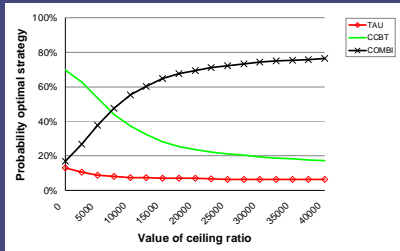
## Cost-effectiveness



Background Trial design Analysis Results Conclusion

## Cost-effectiveness

- Sensitivity analysis of reliable change on BDI-II



Background Trial design Analysis Results Conclusion 

## In sum

- CCBT seems most efficient treatment strategy
- However,
  - Increase threshold value for QALY:
    - Tends to indifference
  - Cost-effectiveness with reliable change outcome in favour of COMBI
  - Outcome measures depression severity and quality of life
    - No significant group differences
    - Not much improvement in all three groups



Background Trial design Analysis Results Conclusion 

## Discussion of findings

Despite results in favour of CCBT,

- The severity of depression in our study sample,
- Moderate improvements in depression, and
- Lack of improvement in quality of life

➔ Suitability of treatment?

Background Trial design Analysis Results Conclusion 

## Questions?

More information:

E-mail: [S.Gerhards@maastrichtuniversity.nl](mailto:S.Gerhards@maastrichtuniversity.nl)

Symposia e-mental health summit Friday 16 October:  
4.9 Online cognitive-behavioural therapy for depression from different perspectives (13.30 - 14.45)

PhD Defence Esther de Graaf, October 23, Maastricht University

Background Trial design Analysis Results Conclusion 