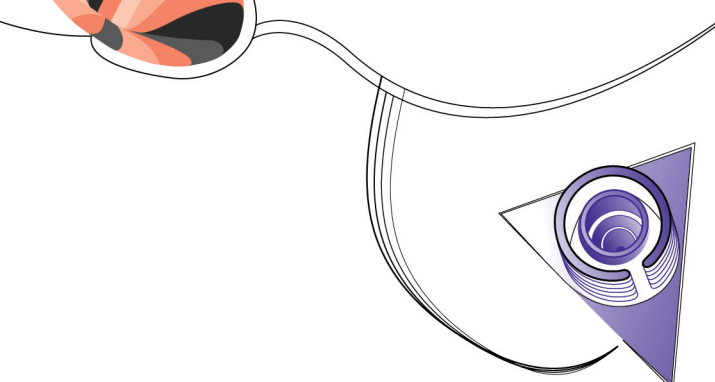
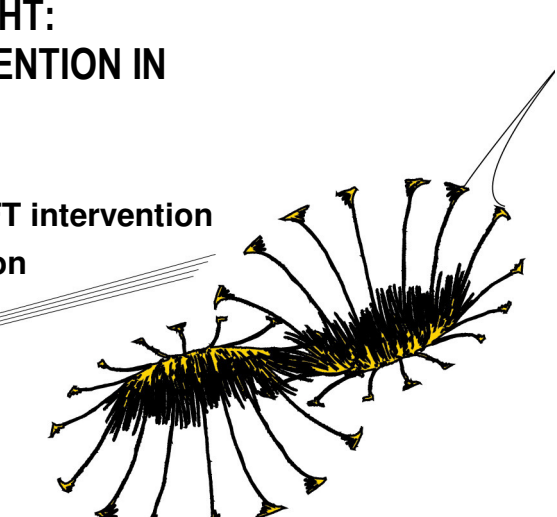


MASTER THESIS

PREVENTION OF OVERWEIGHT: COST-EFFECTIVENESS OF INTERVENTION IN PRESCHOOL CHILDREN

Cost-effectiveness analysis of the BeeBOFT intervention
and Healthy toddler intervention



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Master Thesis Health Science

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I. SUMMARY

Background: There is a rising in the prevalence of overweight and obesity in children in the Netherlands and all over the world. Overweight and obesity have severe physical, psychological, social and economic consequences. Therefore it is important to prevent this development in children as early as possible. The BeeBOFT trial, with the BeeBOFT intervention and Healthy toddler intervention, is a prevention program that targets children aged 0-4 years.

Aim: The aim of this research is to establish the expected incremental cost-effectiveness of the BeeBOFT intervention and the Healthy toddler intervention compared to care as usual for the prevention of overweight in children aged between 0-4 years.

Methods: For the cost-effectiveness analysis a societal perspective was adopted. A time horizon of four years was chosen for the measurement of the intervention costs and effects. For the cost-calculation only the direct costs within and outside the health care were taken into consideration. For all three trial arms the cost unit 'professional costs', 'training costs' and 'material costs' were relevant. For the Healthy toddler intervention also costs for the 'e-health module' and the 'time performing the e-health module' were relevant. The cost analysis for these cost units were conducted with available data gathered during the trial. The total costs per intervention were calculated. The costs were discounted for four years with the discount rate 4%.

The effectiveness establishment was performed via systematic literature review. This was done for the prevalence of children with overweight in terms of reduction in BMI and for the effectiveness measure quality adjusted life years (QALY). The effectiveness outcomes were discounted with a discount rate of 1.5%. Based on the established total costs and the effectiveness the incremental cost-effectiveness ratio were calculated.

Furthermore two forms of sensitivity analyses were performed. A scenario analysis with best case and worst case scenario were completed, as well one-way sensitivity analyses.

Results: The total costs for the BeeBOFT intervention resulted in 42.516 euro, in the best case scenario this was 29.335 euro and in the worst case scenario 68.598 euro. For the Healthy toddler intervention total costs added up to 44.868 euro, in the best case scenario were this 31.095 euro and in the worst case scenario 79.000 euro. The care as usual represents a total cost of 44.433 euro. In the best case scenario this is 14.478 euro and in the worst case scenario 79.210 euro.

The results of the one-way sensitivity analysis show that the 'professional costs' have the largest influence on the care as usual. Comparable, but less dramatic effects can be seen for the BeeBOFT intervention. The analysis for the same parameter of the Healthy toddler intervention shows marginal effects on the total costs. The parameter 'training cost' has an insignificant effect on the total costs of the BeeBOFT intervention and care as usual. For the performing time of the e-health module results a high sensitivity of the total costs.

From the effectiveness review only one article (the Cochrane review) were classified as the most applicable for the BeeBOFT trial. It shows an overall effect in BMI change for children between 0-5 years as -0.26 kg/m^2 (CI: -0.53 to 0.00). From the QALY review results no applicable articles for the BeeBOFT trial. The combination of both components, costs and effects, results for the BeeBOFT intervention in ICER of - 7668 euro per prevented BMI gain. Comparing with the care as usual the BeeBOFT has cost savings of 1917 euro and generates a prevention 0.25 units BMI (kg/m^2) gain in children. For Healthy toddler intervention the ICER is 1740 euro per prevented BMI gain. For the

Healthy toddler intervention additional costs of 435 euro have to be made to generate a prevention of 0.25 units BMI (kg/m^2) gain in children.

Conclusion: It can be expected for the BeeBOFT trial that the BeeBOFT intervention is the most cost-effective overweight prevention program for children aged between 0-4 years. For the Healthy Toddler intervention it can be concluded that it is likely to be cost-effective compared to usual care, but less than the BeeBOFT intervention in this analysis.