

The Multidisciplinary Approach in treating obesity among Preschool and Schoolchildren

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Introduction

The prevalence of overweight and obesity in the world has increased dramatically during recent decades, and the development is now considered as a global epidemic [1]. In Denmark there were a significant increase from the year 1995 to 2002 in mean body mass index (BMI) at children aged 4-18 years and a significant increase in the prevalence of overweight children from 10.9% to 14.4% [2], proving that the disturbing development is also a great problem in Denmark.

The consequences of obesity in childhood and adolescence are among others psychosocial problems, increased risk factors for cardiovascular disease and an abnormal glucose metabolism leading to Type 2 Diabetes. But the most disturbing thing is that childhood obesity often persists into adulthood, including all the associated health risks [1]. Viability and rapid increase in body mass index during childhood are known to be associated with adult obesity [3]. Furthermore overweight in adolescence has been shown to be associated with long-term mortality and morbidity [1]. That is why these children need help to change their lifestyle and treatment for their obesity.

Several multidisciplinary treatment programs for children and adolescents have been established over the last couple of years in Denmark, and finally there seems to be a breakthrough in the treatment of obese children [4]. But what is the effect of the multidisciplinary approach in the treatment of obese children, and is it better compared to the usual care provided to overweight children?

In this assignment my primary aim is to examine the overall effect of the multidisciplinary approach in the treatment of obese preschool and schoolchildren. Secondary I want to look in to what it is in the multidisciplinary approach that seems to be effective.

Methodes

I've searched the database Pubmed, using the MeSH-word "*pediatric obesity*" and the word "*multidisciplinary*", which lead to 55 articles. Then I limited the search to only include children between 2 and 12 years, and got 45 articles. Reading through the abstracts and in some cases the whole article, only 7 fulfilled the inclusion criteria. One of the articles was written in Spanish and was therefore excluded.

Inclusion criteria were:

- Measurement: BMI percentile or BMI z-score
- Effect of Multidisciplinary interventions or Multidisciplinary interventions vs. usual care
- Children between 2 and 12 years

In two of the studies age was from 5 and 8 years up to 14 and 17 years respectively, although the maximum age was more than 12 years and the studies there by not fulfilled the inclusion criteria, the studies was included anyway, because of the large spread of age in the study group.

Searching through the databases Pubmed, Embase, PsycINFO and Scopus using the words “*child*”, “*obesity*” and “*multidisciplinary*” further one article was found, leading to 7 articles of interest. One of the previous articles was a continuation of the new article, both was included because the articles contained various data. The two articles will be referred to as one study in the review.

The search above was performed for the last time on February the 1th 2016.

In this review I have chosen to describe the level of significance of the differences by using 95% confidence intervals rather than P-values, if they were given in the articles, because the difference is significant if the 95% confidence interval does not include the number zero.

Results

The total study population was aged between 2 and 17 years, mean age of all of the children who participated in the multidisciplinary interventional studies was 7 years. In one study mean age was not stated, and therefore not included in the calculation. Time to follow-up was at least 12 months and in four of the studies more than 24 months [5-11]. The details and outcome of the studies are presented in table 1.

All of the studies found that the group of children with the multidisciplinary interventions had a significant greater decrease in BMI percentile or BMI z-score [5-11].

Nemet et al. found after 12 months intervention that 91.8% of the children in the intervention group had a significant reduction BMI percentile. BMI percentile was reduced from $97.3\% \pm 0.4\%$ to $93.4\% \pm 0.7\%$, a 3,9% reduction during the 12 months[9]. Resnicow et al. observed a significant 4.9% reduction in BMI percentile in the multidisciplinary intervention group over the 24 months [10]. The significant differences in the decrease of BMI percentile between the intervention group and the control group in the two studies were -3.7% and -3.1% respectively [9, 10].

All of the studies which measured BMI z-score found that the groups with the multidisciplinary interventions had reductions in z-score, the significant reductions were -0.07 (-0.11 to -0.04) and -0.6 (-0.82 to -0.44). There was in all of the studies a significant difference between the reductions achieved by the intervention group compared to those achieved by the control group. [5-8, 11].

Beside the reductions in BMI percentile and BMI z-score Nemet et al., Taylor et al. and Bocca et al. found a significant decrease in BMI in the intervention group, the mean reduction in BMI was -1.3kg/m², -0.8kg/m² and -1.0kg/m² respectively [5, 9, 11].