Supplementary Methods. Systematic review protocol

Objective
To test the association between childhood maltreatment and obesity over the life-course

Inclusion criteria

Study type
All original, peer-reviewed studies (i.e., not meeting abstracts) will be eligible to enter our meta-analysis.

All study designs including a control group with no maltreatment history and no obesity will be eligible to enter our meta-analysis.

Childhood maltreatment
Definition of childhood adversities must be consistent with maltreatment (i.e., physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect, or family conflict/violence) and occurring before age 18 years

Obesity
Definition of obesity must be based on weight and height (i.e., categorical measures of Body Mass Index above a preset value, continuous measure of BMI, or corresponding z-scores in studies of children) or waist circumference

Search methods

Data sources
Studies will be identified initially through electronic searches in the Medline, PsycInfo, and Embase databases.

Manual search of the studies initially identified from the electronic searches and included in the analyses will be used to identify additional studies.

We will identify all studies on this topic written in English and published by August 1, 2012.
**Search terms/keywords**

- child* maltreatment,
- child* abuse,
- child* neglect,
- family conflict,
- early experience

combined with

- obesity,
- overweight,
- body-mass index,
- BMI,
- body size,
- adiposity,
- waist circumference

**Data extraction**

Two authors will independently extract data from eligible articles. Inconsistencies will be resolved in consensus meetings and checked with the authors of the primary studies when necessary.

We will also collect and code information about the following variables from all included studies:

- mean age of the sample,
- gender distribution,
- ethnicity,
- maltreatment assessment (retrospective, prospective),
- maltreatment measure (questionnaire, interview, records),
- maltreatment definition (physical abuse, sexual abuse, emotional abuse, physical neglect, emotional neglect),
- obesity measure (self-report, examination),
- obesity definition (obesity cut-off, BMI scores, waist circumference),
- covariates included in the adjusted effect size (child socioeconomic status, adult socioeconomic status, current smoking, current alcohol intake, current physical activity, current depression).

- study quality (scores will be computed based on the Newcastle-Ottawa Scale for the evaluation of study quality in observational studies, as recommended by the Cochrane collaboration.

**Data synthesis**

We will extract adjusted effect sizes whenever possible, in order to measure the effects of maltreatment independent of the influence of potential intervening variables. Extracted data will be converted to odds-ratios effect sizes when necessary. Where only continuous outcomes are reported, risk of unfavorable outcomes will be derived using validated methods. The odds-ratios effect sizes will reflect the probability of unfavorable outcomes, with odds ratios above 1 reflecting increased likelihood of obesity in individuals with a history of childhood maltreatment compared to non-maltreated individuals.

Heterogeneity between studies will be quantified with I-squared statistics and tested with Cochran’s Q test. In the presence of significant heterogeneity, we will carry out meta-analyses using random-effects models, which include both sampling and study-level errors. Meta-analysis will be performed using the *metan* programs applied in STATA.

In order to measure the impact of maltreatment on obesity, we will estimate the number needed to treat, defined as \( NNT=1/(1-OR) \times Po \), where \( Po \) is the prevalence of obesity in the population, following recommendations by the Cochrane Collaboration.

**Risk of bias across studies**

We will assess the presence of publication bias visually by funnel plot and formally by its direct statistical analog, Begg’s adjusted rank correlation test, using the *metabias* program applied in STATA. In the presence of significant rank correlation tests, we will adopt a nonparametric "trim-and-fill" method using the *metatrim* program applied in STATA to examine the extent to which publication bias may have contributed to the meta-analytical results.

We will assess the undue influence of individual studies on the overall meta-analysis results by testing changes in the estimate across permutations where each study was omitted in turn using the *metaninf* program applied in STATA.
Additional analyses

We will assess the sensitivity of meta-analytical results to different definitions and measures of childhood maltreatment and obesity through subgroup analyses focusing on different definitions and measures of exposure and outcome.

We will test for meta-analytical evidence of confounding or mediation by childhood/parental socio-economic status, adulthood socioeconomic status, current smoking, current alcohol intake, current physical activity, and current depression through subgroup analyses contrasting effect sizes that were adjusted or unadjusted for a specific potential intervening variable.

Finally, we will assess the moderation of the meta-analytical results by gender distribution (% female), ethnicity distribution (% white), mean age of the sample, and study quality through meta-regression using the metareg program applied in STATA.