The Effects of Psycho-Educational Intervention on Quality of Life in Patients with Implantable Cardioverter Defibrillators: A Meta-Analysis

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Background

➢ Implantable cardioverter defibrillator (ICD) is an efficient medical device for primary and secondary prevention of sudden cardiac death.

➢ In United States, the ICD implantation rate increased from 6.1% in 1993 to 46.2% in 2006. The average rate significantly increased 17.9% per year (95% CI: 17.6-18.3%, p< .001) .

➢ Quality of life is an important outcome factor for patients with ICDs since it is related to the first year survival.

Purpose

➢ The aim of this study was to evaluate the overall effectiveness of psycho-educational interventions on making an improvement of QOL in patients with ICDs through conducting meta- analysis.

Methods

➢ We systematically searched the following databases: PubMed, Medline, Cochrane Library, and CINAHL up to April 2015 and references of relevant restricted articles.

➢ Studies were recruited in analysis if they met following criteria: (1) randomized controlled trial design, (2) participants in study were adult patients with ICD implanted, and (3) providing sufficient data to evaluate the effect of psychological or educational interventions on QOL which was measured by SF-36 or SF-12.

➢ The Cochrane Collaboration's Review Manager Software Package (RevMan 5) was used for this meta-analysis. Pooled data across trials using the fixed-effect or random-effect model. Heterogeneity was assessed by Q statistics and I^2 statistic.

Results

➢ A total of 151 potential studies were identified from electronic databases. Removing 35 duplicate articles, 116 full-length articles remained. We excluded 88 studies inconsistent with the theme . Among the remains, four studies were not included in analysis. One study did not provide the mean and standard deviation of the scores of SF-36 even we contacted the authors , one study had great dropout in each group, and two studies analyzed the long-term follow-up outcome of one randomized controlled trial, however we already included the post-intervention outcome of this trial in analysis. Therefore, we included 7 studies in the final data analysis .

➢ A total of 1017 ICD recipients participated in these 7 studies, with 516 participants randomly assigned to the experimental group, and 501 to the control group. The majority of participants were male (80.4%, n= 818), with mean age across the studies ranged from 55.9 years to 64.4 years, and mean ejection fraction lower than 35%. To measure the QoL outcome, four studies used SF-12, and three studies used SF-36.

➢ We used fixed-effect model to examine the effect of psycho-educational intervention on improving PCS since heterogeneity(x^2= 2.51, p= 0.87; I^2= 0%). Mean difference between experimental and control groups in PCS scores was estimated as 2.08 (95% CI 0.86 to 3.29, p< .001).

➢ The random-effect model was used to assess the effect of psycho-educational intervention on improving MCS since heterogeneity (x^2= 21.33, p= .002; I^2= 72%). Mean difference between experimental and control groups in MCS scores was estimated as 0.84 (95% CI -1.68 to 3.35, p= .52).
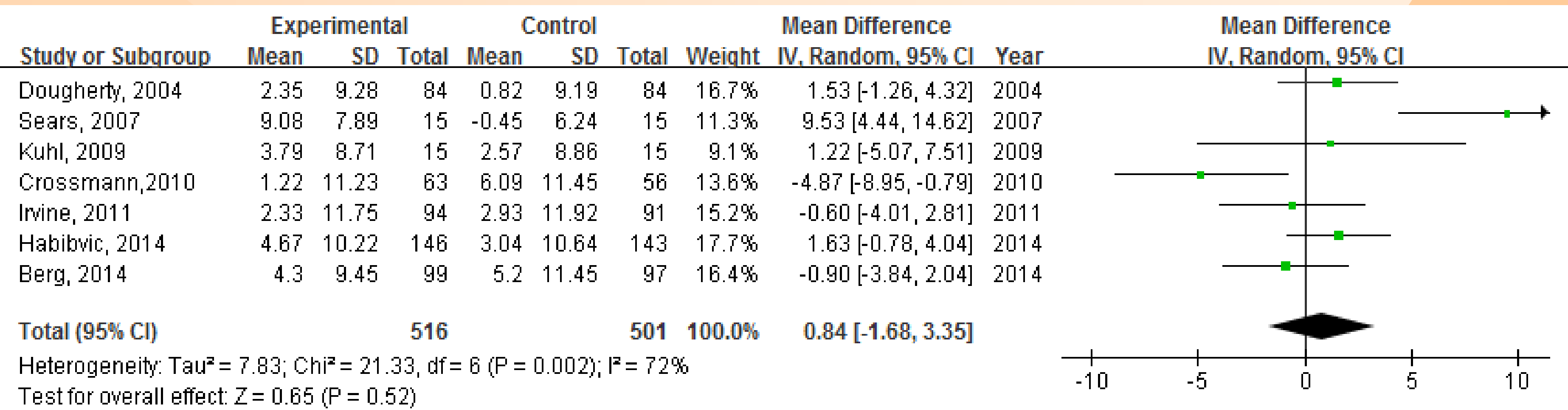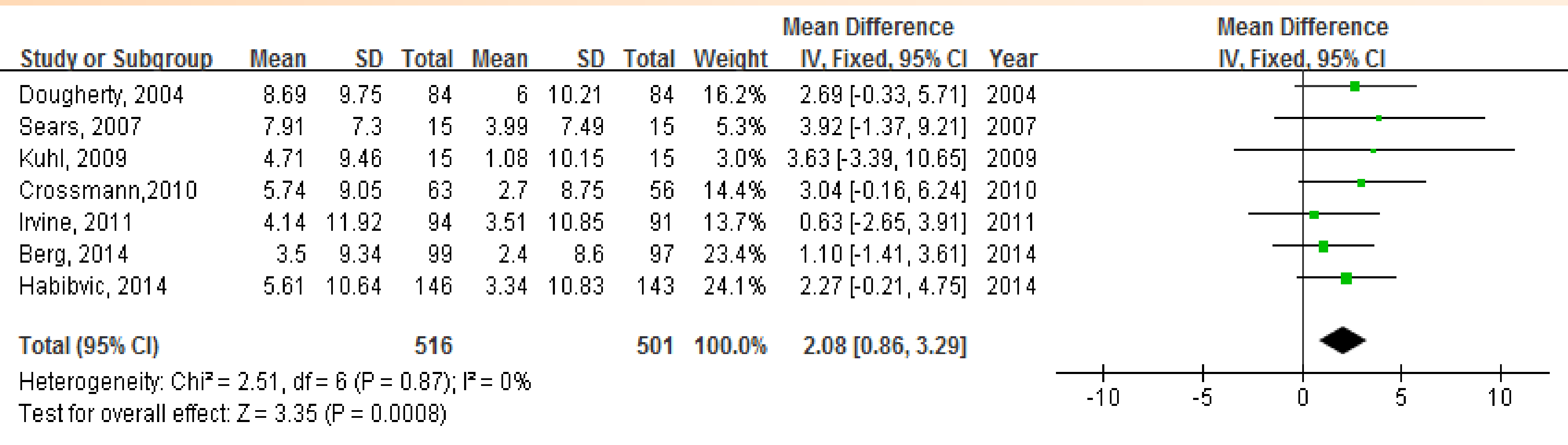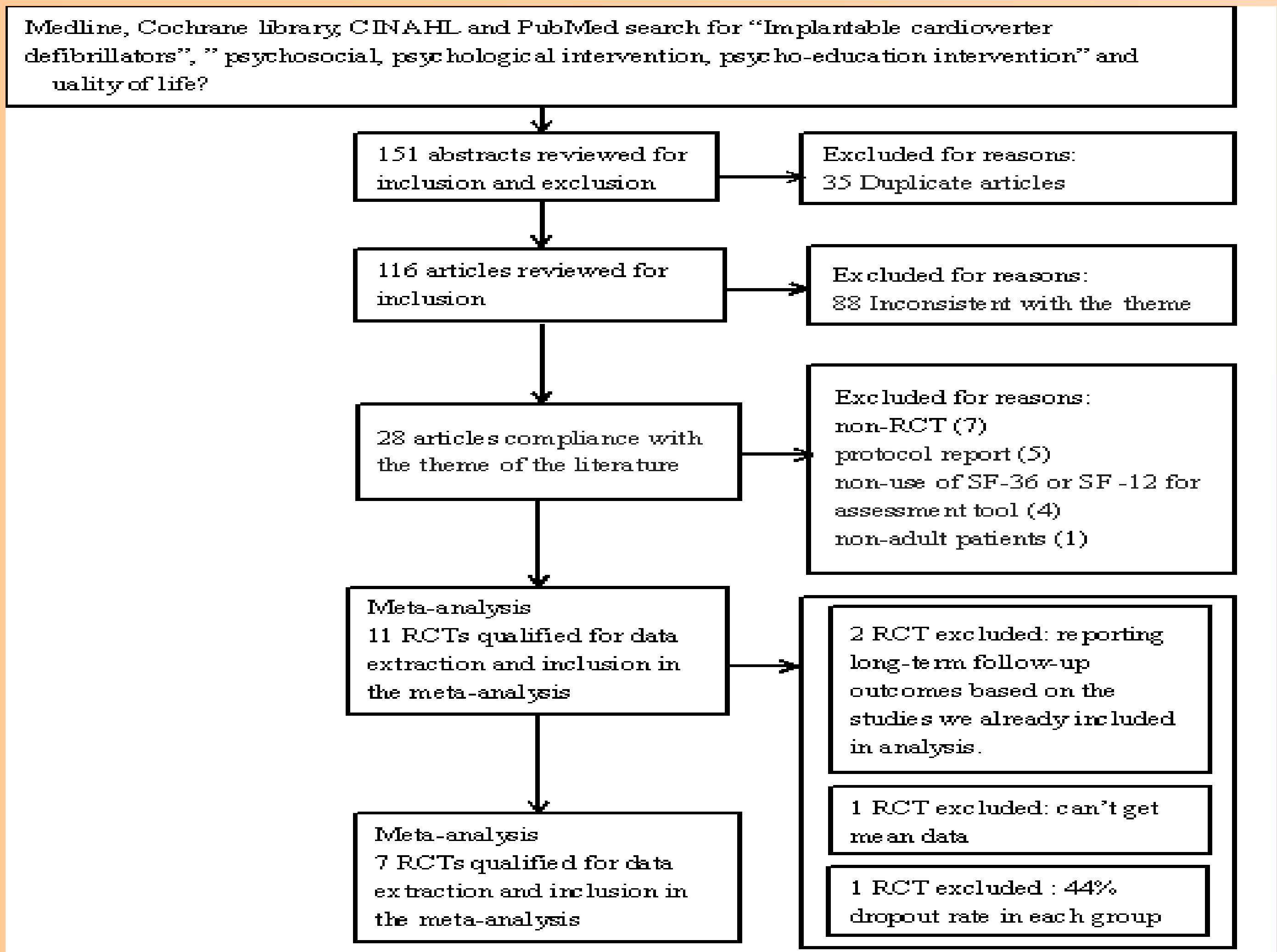
Conclusion

The meta-analysis demonstrates that psycho-educational interventions improve physical component, but not mental component of QOL in patient with ICDs.