# Major flaws in a meta-analysis of short-term psychodynamic therapy (STPP) for depression

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In this journal, Caselli and colleagues recently published a meta-analysis on short-term psychodynamic therapy (STPP) for depression (Caselli et al., 2023). Although we welcome their attempt to evaluate the efficacy of STPP in depression, their systematic review and meta-analysis contains a large number of serious shortcomings, listed in the following.

1) In the analysis comparing STPP with treatment as usual (TAU) with regard to symptom severity (k=2), several studies listed in their supplement as meeting their inclusion criteria are missing (de Roten et al., 2017; Town et al., 2017; Vitriol et al., 2009). These studies have been included in previous meta-analyses (Barber et al., 2021; Driessen et al., 2015).

2) In the comparison of STPP with CBT (k=9) with regard to symptom severity, at least three studies are missing (Barkham, 1996; Driessen et al., 2013; Fonagy et al., 2020). Further, the study by Liberman (1981) is an outlier in several comparisons of STPP and CBT since its confidence interval is completely outside the confidence interval of the pooled effect size (see supplementary material). However, no sensitivity analyses were conducted.

3) For STPP vs. CBT with regard to symptom severity, the authors reported an effect size (standardized mean difference, SMD) of 0.19 in favor of CBT, while in the supplement an effect size of 0.16 was reported. It is not clear which is the correct one.

4) In the analysis of STPP versus supportive therapy (k=9) with regard to symptom severity, we note the following shortcomings:

- In the study by Burnand et al. (2002), STPP combined with clomipramine was compared clomipramine alone. No supportive therapy was included.
- In the study by Maina et al. (2007), STPP combined with medication was compared to supportive therapy combined with medication. This study is thus only valid for the

comparisons involving combined treatment, but not for STPP alone. It is not clear if and how pharmacotherapy affects the results of STPP.

- A similar problem applies to the study by Martini et al. (2011), which compared STPP combined with pharmacotherapy with supportive therapy combined with pharmacotherapy. Again, the results are only valid for the combined treatment, but not for STPP alone.
- Furthermore, Martini et al. (2011) included patients with panic disorder who had concurrent depressive symptoms. Martini et al (2011) used HAM-D $\geq$17 as one inclusion criterion; however, the average baseline HAM-D was approximately 13.5. Thus, it is not clear how many subjects of the sample fulfilled the criteria of a depressive disorder. The inclusion of this study contradicts Caselli and colleagues' inclusion criteria.
- In the study by Johansson et al. (2012) guided self-help based on psychodynamic principles was compared to supportive self-help. It is unclear whether this constitutes "psychotherapy" per Caselli and co.'s inclusion criteria. Furthermore, while internet-based CBT was shown to be as efficacious as face-to face CBT (Andersson et al., 2014), it is not yet clear if this applies to internet-based STPP as well.
- The study by Connolly Gibbons et al. (2012) compared STPP with treatment as usual (TAU). TAU was classified as supportive therapy in the meta-analysis by Caselli et al., while no supportive therapy protocol was used as a comparator in this trial.

5) Three studies (Gallagher-Thompson & Steffen, 1994; Gallagher & Thompson, 1982; Thompson, 1987) investigating depression in a geriatric population were included in the meta-analysis, although patient age $\geq$65 was listed as an exclusion criterion. In addition, however, it is not clear why these studies should be excluded. They were included in other meta-analyses (Barber et al., 2021; Driessen et al., 2015).

6) The comparison of STPP with antidepressants with regard to symptom severity was based on only two studies (Dekker et al., 2008; Hersen, 1984). Risk of bias was high for one of the studies (Hersen, 1984). With only two studies and a total sample size of 198 patients, the sample size is below the "optimal in information" size (OIS, Guyatt et al., 2011; Schünemann et al., 2022). The OIS is the sample size required to detect a clinically meaningful effect size with a power of 0.80 at alpha=0.05 to ensure sufficient precision (Guyatt et al., 2011; Schünemann et al., 2022). If an effect size of d=±0.24 is used as a threshold for a clinically meaningful effect size in depression (Cuijpers et al., 2014), a total sample size (OIS) of 432 patients is required. With 198 patients the sample size was clearly below the OIS, indicating severe imprecision. Thus, the confidence in the estimate for the effect size is low. Furthermore, in the trial by Dekker et al. 2008 patients received only 8 sessions. In addition Caselli et al. (2023) exclude other relevant trials from this analysis, which generally showed no differences between STPP and antidepressant therapy (Barber et al., 2012; Salminen et al., 2008). Hence, the conclusion that "antidepressant pharmacotherapy is resulted to be slightly more effective to STPP" (Caselli et al., 2023, p. 174) is based on weak evidence and should be avoided.

7) The problem of sample size below the OIS implying serious imprecision applies to STPP combined with pharmacotherapy vs. STPP alone as well as it was also based on two RCTs only with a total of 265 patients.

8) Risk of bias and study quality was not statistically taken into account, e.g. by sensitivity analyses.

9) Caselli et al. (2023) did not define one index of depression change as their primary outcome, but used four indices (response, remission, severity of depressive symptoms and "clinical improvement", the latter defined as pre-to-post differences). Using several measures

as primary gives room for potentially biased interpretation of results and may lead to contradictory conclusions (e.g., because some studies include the data necessary to calculate some but not all of these indices). In addition, problems of type I error inflation arise, not adjusted for by the authors.

10) The meta-analysis was not pre-registered, which leaves room for potential bias.

11) Publication bias was not assessed.

12) The authors restricted the literature search to studies published up to 2018. Hence, possible studies published in the last four years were not included.

13) Caselli et al. (2023, p. 170) the authors defined STPP in the inclusion criteria as being "limited in time with a defined number of sessions" without specifying the number of sessions. Hence, this definition could also include trials of 50 or more sessions.

14) The authors (p. 170) excluded studies when "STPP programs were based on interpersonal approach". However, a  focus on interpersonal dynamics is a key component of STPP for depression (Leichsenring & Schauenburg, 2014), which the authors themselves discuss in their introduction.

15) The authors (p. 170) define "controls with non-psychotherapeutic interventions" as "usual treatments". However, in many cases treatment as usual (TAU) conditions include psychotherapy.

16) It is not clear which studies were included as The PRISMA flow-chart displays 31 included studies in the article, but there are actually 35 studies listed in the supplemental materials listing the included RCTs. In the supplemental materials, some studies of interpersonal therapy are listed that do not appear to be included in any analysis and which do not fulfill the inclusion criteria which is confusing.

17) Many of the authors' conclusions are difficult to interpret, as the references of the included studies were not reported, the appendices referred to by the authors are not publicly accessible, and the authors seem to have difficulties formulating their conclusions in English.

The numerous shortcomings listed above seriously question the results of this meta-analysis. For this reason, we ask the authors to retract and replace their article reporting new analyses taking into account the above issues.

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