CRD summary
This paper, which reviewed the effectiveness of habit reversal therapy (HRT), selective serotonin re-uptake inhibitors (SSRIs) or clomipramine for the treatment of trichotillomania, demonstrated that HRT is the most effective intervention for trichotillomania. Clomipramine also showed benefit for symptoms of trichotillomania, while SSRIs did not appear to be effective. This was generally a well-conducted review but it might have missed relevant unpublished studies.

Authors’ objectives
To review the effectiveness of habit reversal therapy (HRT), selective serotonin re-uptake inhibitors (SSRIs) or clomipramine for the treatment of trichotillomania (compulsive hair pulling).

Searching
PubMed, PsycINFO, EMBASE and the Cochrane CENTRAL Register were searched; the keywords were reported. In addition, the references of retrieved papers and review articles were screened for relevant citations.

Study selection
Eligible studies reported on the effects of HRT, SSRIs or clomipramine to treat trichotillomania diagnosed using the American Psychiatric Association's DSM-IV criteria in patients over the age of 16 years. Included studies were required to be randomised controlled trials with an appropriate control arm. The main outcome of interest was improvement in trichotillomania severity, as measured by an appropriate clinical scale; the included studies used a range of scales and self-reported measures were only eligible where the patients were blinded to treatment assignment.

Two reviewers screened titles and abstracts and full-text articles were then retrieved; the screening process was unclear.

Assessment of study quality
Only randomised, controlled, outcome assessor-blinded studies were eligible for this review. Validity was further assessed using the ‘Quality Reference Scale’. No details were given on how the validity assessment was performed, or the contents of the scale used.

Data extraction
The mean improvement (and standard deviation, SD) in trichotillomania severity was extracted for each parallel study. Data from crossover trials were extracted as the mean difference (with SD) from the first period only if significant carry-over effects were observed, or as the mean difference (with SD) between the intervention and control periods if there was no carryover.

Two independent reviewers extracted the data using structured extraction sheets. Any disagreement was resolved through discussion, and authors were contacted for further data or clarification where necessary.

Methods of synthesis
Statistical meta-analysis was carried out on the pooled data using the standardised mean difference (SMD) to account for the different outcome measure scales. Ninety-five per cent confidence intervals (CIs) were calculated using a random-effects generic inverse-variance model. The studies were weighted according to sample size and variance. Heterogeneity was assessed using forest plots and the I² statistic. Publication bias was examined using funnel plots. Sensitivity analyses were carried out to examine the effects of patient drop-out, comparing the original analysis with a last-observation-carried-forward assumption for missing data.

Results of the review
Seven studies were included in this review, with a total of 157 patients completing treatment. Four were parallel-group trials and three were crossover trials.

Overall, the trials were reported to be of moderate-to-good quality according to the Quality Rating Scale (score 21 to 34 out of a possible 46). None of the parallel trials presented intention-to-treat results.

Results of the assessment of publication bias were not reported.

SSRI versus control (4 studies, 72 completers): no significant benefit of SSRI treatment over placebo was found (SMD 0.02, 95% CI: -0.32, 0.35, p=0.93). Sensitivity analyses using last observation carried forward showed a similar result.

Clomipramine versus control (2 studies, 24 completers): clomipramine was associated with significant decrease in the severity of trichotillomania compared with the control group (SMD -0.68, 95% CI: -1.28, -0.07, p=0.03). Sensitivity analyses using last observation carried forward showed a similar result.

HRT versus control (3 studies, 59 completers): HRT was associated with a significant decrease in the severity of trichotillomania compared with the control group (SMD -1.14, 95% CI: -1.89, -0.38, p=0.003). Sensitivity analyses using last observation carried forward showed a similar result.

HRT versus SSRI (1 study, 25 completers): this small study, available only as an abstract, reported no significant difference between treatments.

HRT versus clomipramine (1 study, 17 completers): HRT was associated with a significant decrease in the severity of trichotillomania compared with the control group (effect size -1.74, 95% CI: -3.23, -0.25). Sensitivity analyses using last observation carried forward showed a similar result.

The results for sensitivity analyses were presented: all showed similar results to the main analyses. No significant heterogeneity was reported for any analysis.

Authors' conclusions
Overall, this review demonstrated that HRT is the most effective intervention for trichotillomania and demonstrated the largest effect size. Clomipramine also showed benefit for symptoms of trichotillomania, while SSRIs did not appear to be effective despite recommendations for their use.

CRD commentary
The review question was clearly constructed and defined in relation to the inclusion and exclusion criteria. The authors searched a number of relevant databases but did not specifically seek unpublished studies. Although funnel plots were mentioned no results were reported, therefore publication bias may be present. A validity assessment was carried out although not fully reported; inclusion was restricted on the basis of study design and quality, which increases the reliability of this review. The study selection and data extraction processes were carried out robustly, and the meta-analysis methods chosen appear appropriate. The authors highlighted potential confounding factors, such as duration of the intervention and the short-term follow-up in the included trials, and attempted to account for these. This was a generally well-conducted review and the conclusions of this review follow logically from the evidence presented, although the potential for missed studies means that they may not reflect the full evidence picture.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice

Research: The authors stated that further research is recommended on other SSRI drugs such as citalopram, which may be more effective than fluoxetine, and HRT or other potentially beneficial treatments. Future research should incorporate a control group that accounts for the non-specific effects of therapy, and involve larger sample sizes, and address the validation of scales to assess the severity of trichotillomania.

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