Pharmacological and psychological treatments of pathological skin-picking: a preliminary meta-analysis
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CRD summary
This review concluded that both pharmacological and psychological interventions appeared to be effective in reducing the severity of pathological skin picking; psychological interventions could have a larger effect. The conclusions may not be reliable due to differences between the interventions, and the unknown quality of the included studies.

Authors’ objectives
To examine and compare the efficacy of pharmacological and psychological treatments for pathological skin picking.

Searching
Academic Search Complete, MEDLINE, PsycINFO, ScienceDirect and Web of Knowledge were searched; some search terms were reported. Reference lists were checked. The search was limited to studies in English.

Study selection
Studies were eligible for inclusion if they evaluated either a behavioural or psychological, or a pharmacological intervention for skin picking, defined as self-inflicted tissue damage by pulling, scratching, lancing, digging, gouging, or picking, causing significant distress or impairment. Studies were excluded if there was insufficient data to estimate an effect size; the primary diagnosis was a developmental disorder, eating disorder or body dysmorphic disorder; skin picking was better understood as deliberate self-harm; or interventions were primarily dermatological and not focused on improving skin-picking behaviour.

In the included pharmacological studies, the mean age of participants ranged from 32 to 46 years, and the mean duration of the disorder, where reported, ranged from 18 to 20 years. The drugs used were citalopram (20mg/day for four weeks), fluvoxamine (up to 300mg/day for 12 weeks), lamotrigine (up to 300mg/day for 12 weeks), escitalopram (up to 30mg/day for 18 weeks), or fluoxetine (60mg/day for 10 weeks). Treatment completion rates ranged from 21% to 86.96%.

In the included psychological studies, the mean age of participants ranged from 22 to 45 years, and the mean duration of the disorder, where reported, ranged from 15 to 19 years. The treatments were cognitive-behavioural therapy (four to seven sessions), habit reversal (three sessions in one study), and acceptance and commitment therapy (eight sessions). Completion rates ranged from 15.86% to 100%.

Studies were published between 1981 and 2011. Two reviewers independently selected studies for inclusion, with any disagreements resolved through discussion.

Assessment of study quality
The authors did not report an assessment of study quality.

Data extraction
Means and standard deviations were extracted to calculate Hedge's $g$ with 95% confidence intervals, for the frequency or severity of skin picking, depression, anxiety, and obsessive-compulsive disorder symptoms. Where the means and standard deviations were not reported, Student t-tests, $F$ scores, or other effect size values were used.

The data were extracted by one reviewer and checked by a second reviewer.

Methods of synthesis
Both fixed-effect and random-effects models were used to pool the effect sizes. To compare interventions, effect size clusters were formed for psychological and pharmacological interventions, as a moderator variable, and a fixed-effect model was used to examine the influence of the moderator variable. Heterogeneity was assessed using Cochran's $Q$ and
I² (values >50% suggested significant statistical heterogeneity).

**Results of the review**

Twelve studies were included (350 participants). Six were of pharmacological interventions (three RCTs and three open controlled trials; 14 to 45 participants) and six were of psychological interventions (two RCTs, one before-and-after study, two case series, and one multiple baseline study; three to 151 participants).

Overall there was a large, statistically significant, treatment effect on skin-picking severity with pharmacological or psychological interventions (random-effects g=0.99, 95% CI 0.06 to 1.43; 12 studies) with evidence of substantial heterogeneity (I²=76%).

There was a significant difference in mean effect size, on skin-picking severity, between pharmacological interventions (g=0.78, 95% CI 0.48 to 1.09; I²=64%; six studies) and psychological interventions (g=1.52, 95% CI 1.37 to 1.67; I²=66%; six studies). Statistical heterogeneity was explained by excluding outlying studies, but the difference in effect size between pharmacological and psychological interventions was no longer significant.

Due to insufficient data, secondary outcomes were only analysed for pharmacological interventions. There were no statistically significant treatment effects for anxiety (four studies; I²=36%) and depression (five studies; I²=0). The mean effect size for obsessive-compulsive disorder symptoms was moderate (g=0.57, 95% CI 0.22 to 0.91; I²=72%; five studies). Heterogeneity in the pharmacological interventions was explored by medication class.

**Authors' conclusions**

Both pharmacological and psychological interventions appeared to be effective in reducing the severity of pathological skin picking; psychological interventions could have a larger effect.

**CRD commentary**

The review question and inclusion criteria were clear. The authors searched a range of databases. The restriction to studies published in English may have excluded some relevant data. Efforts were made to reduce error and bias in the review process.

The authors did not report a quality assessment, so it is difficult to know how reliable the results of the individual studies were. Many of the studies had designs prone to bias. Details about the comparator interventions, in the studies with control groups, were not reported. Given the heterogeneity across the studies, the limited reporting of study details and the unknown quality of the included studies, it seems inappropriate that the results were statistically synthesised, particularly for pharmacological and psychological interventions, for pathological skin-picking severity.

The authors' conclusions and comparison of treatment effect size between pharmacological and psychological treatments may not be reliable.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that methodologically rigorous research should examine interventions for pathological skin picking that take comorbid depressive and anxiety symptoms into account. Research should investigate the combined effects of pharmacological and psychological interventions, patient characteristics, and the varying effects of different medication classes.

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