A meta-analysis of the effectiveness of psychological interventions for adults with skin conditions

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CRD summary
The authors concluded that psychological interventions were beneficial for people with skin conditions. In light of the potential for bias in the review process, the unclear quality of included studies and the use of estimated effect sizes, the authors' conclusions should be treated with caution.

Authors' objectives
To assess the impact of psychological interventions on severity of and distress associated with skin conditions in adults.

Searching
Web of knowledge, MEDLINE, PsycINFO and Cochrane Central Register for Controlled Trials (CENTRAL) were searched up to February 2010 for articles published in peer-reviewed journals in English. Search terms were reported. A citation search was carried out and the reference lists of identified studies were handsearched.

Study selection
Randomised and non-randomised studies that compared a psychological intervention to a control condition in adults with skin conditions were eligible for inclusion. Studies of educational interventions or complementary therapies were excluded. Studies had to measure severity of skin condition, feelings of itchiness, urge to scratch or psychological factors (emotional difficulties, cognitions, coping or quality of life).

Included studies compared habit reversal, cognitive behavioural therapy (CBT) type, arousal reduction, group therapy, psychodynamic therapy, emotional disclosure/therapeutic writing or combined interventions to waiting list, standard medical care, no treatment or other comparison groups. The duration of the intervention ranged from one session to nine months. The interventions were delivered as individual, group or self-help. Skin conditions assessed in the review were psoriasis, atopic dermatitis, acne, vitiligo and pruritic. The mean age of participants ranged from 22 to 48 years. Outcomes reported in the included studies varied widely (details in the review). Follow-up ranged from zero months to 18 months.

The authors did not report how the studies were selected for the review.

Assessment of study quality
The authors did not state that they assessed the quality of included studies. They reported the allocation methods for non-randomised studies.

Data extraction
Where possible, the mean and standard deviation were extracted and used to calculate Hedges' g effect size with 95% confidence intervals for each study. Where data were not reported to enable precise calculation of an effect size, this was estimated using significance levels. Where more than one data set were reported in a study, data from the longest follow-up period, the most passive control condition and the intervention most similar to other interventions were used.

Data were extracted by one author. Two other authors independently extracted data from a subset of studies. Disagreements were resolved by consensus.

Methods of synthesis
Effect sizes were pooled using a random-effects model. Statistical heterogeneity was assessed using the Cochran Q statistic. Where there were more than three studies in a category, the impact of categorical moderators on outcome (type of outcome, type of intervention, skin condition, presence of pain, mode of delivery and clinical or community sample) was calculated using a sample-weighted average effect size for each category and comparing these using Q. For non-significant results with no other data to permit calculation of effect sizes, the outcome was excluded from the
analysis. In two studies with no data available, an estimate of \( p=0.50 \) was used to enable calculation of the effect size. Where more than one outcome measure was used in a study, a meta-analysis was carried out within each study, an overall effect size and an effect size for skin severity, itch/scratch and psychological distress was calculated. The impact of continuous moderators on outcome (age, duration of intervention, duration of skin condition, time to follow-up) was investigated using a meta-regression.

**Results of the review**

Twenty-two studies (twenty-three comparisons, 929 participants) were included in the review; seventeen randomised controlled trials and five non-randomised studies.

Psychological interventions showed a small to moderate effect on combined skin severity, itch/scratch and psychosocial outcomes compared to control in adults with skin conditions for studies that enabled a precise calculation of effect size \( (g=0.34 \text{ 95\% CI 0.12 to 0.54}) \). There was no evidence of significant statistical heterogeneity. For studies where individual effect sizes had been estimated, the effect of psychological interventions on skin conditions was significantly higher \( (g=0.70 \text{ 95\% CI 0.41 to 0.99}) \). There was evidence of significant statistical heterogeneity \( (p<0.01) \). When all studies were combined, the effect of psychological interventions on skin conditions was moderate \( (g=0.54 \text{ 95\% CI 0.34 to 0.71}; 23 \text{ studies}) \). There was evidence of significant statistical heterogeneity \( (p<0.05) \).

When outcomes were considered separately, psychological interventions had a medium sized effect on itch/scratch \( (g=0.67, \text{ 95\% CI 0.35 to 0.99}; \text{ eight studies}) \) and psychosocial outcomes \( (g=0.53, \text{ 95\% CI 0.35 to 0.71}; \text{ 17 studies}) \) and a small to medium effect on skin severity \( (g=0.40 \text{ 95\% CI 0.16 to 0.65}; \text{ 17 studies}) \).

Psychological interventions had a medium-sized effect on outcomes in participants with psoriasis \( (g=0.51; \text{ 95\% CI 0.25 to 0.77}; \text{ eight studies}) \) and atopic dermatitis \( (g=0.55 \text{ 95\% CI 0.24 to 0.86 9 studies}) \) compared to control. The effect of psychological interventions on skin conditions accompanied by pain \( (g=0.49 \text{ 95\% CI 0.31 to 0.67}; \text{ 18 studies}) \) was significantly less \( (p=0.05) \) than skin conditions that affected appearance only \( (g=0.91 \text{ 95\% CI 0.41 to 1.41}; \text{ four studies}) \).

Habit reversal was associated with the greatest impact on outcomes for participants with skin conditions. CBT type interventions, arousal reduction and combined interventions showed moderate effects. Psychological interventions delivered individually and in group format both showed a medium effect on itch/scratch, psychosocial outcomes and skin severity compared to control.

**Authors' conclusions**

Psychological interventions were beneficial for people with skin conditions.

**CRD commentary**

The review addressed a clear question with well-defined inclusion criteria. Restrictions in the search process introduced the risk of language and publication bias. The study selection process was unclear and not all data extraction was performed in duplicate, so the possibility of reviewer error and bias could not be ruled out. The authors did not report methodological quality of included studies, so the reliability of the findings was unclear. Effect sizes were estimated for many of the studies. When only studies with precise effect sizes were included in the meta-analysis, the effect size decreased significantly. This suggested that including estimated effect sizes artificially increased the effects found in meta-analysis.

In light of the potential for bias in the review process, the unclear quality of included studies and the use of estimated effect sizes, the authors' conclusions should be treated with caution.

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

**Practice:** The authors stated that group interventions may prove a cost-effective intervention. They also stated that nurses may deliver habit reversal interventions in a clinical, with more complex referrals being addressed by psychologists or psychiatrists using a stepped care approach.

**Research:** The authors stated that further well-designed RCTs were needed, particularly investigating in-depth psychological interventions (cognitive analytic therapy, psychodynamic psychotherapy and/or cognitive psychotherapy) and the effects of psychological therapy in participants with vitiligo and acne. Further research was needed into the long-
term benefits of psychological interventions for skin conditions, the impact of follow-up sessions, and the cost-effectiveness of group-based interventions. Future research should be reported in line with CONSORT guidelines and make more explicit reference to the theoretical framework underlying interventions.

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