

Quality of life in people with vitiligo: a systematic review and meta-analysis

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Dear Editor,

Vitiligo is cosmetically disfiguring and has profound psychosocial effects due to stigmatization, problems in sexual function, anxiety, self-esteem and difficulty finding employment.¹ Previous studies suggest a reduction in quality of life (QoL) due to vitiligo, but to date no systematic review has quantified this in comparison to people without vitiligo. Therefore, the aim of this review was to compare QoL in people with and without vitiligo.

The review protocol was registered with PROSPERO on 2nd November 2016 (CRD42016050704) and reporting follows PRISMA guidelines.² In October 2016, we searched MEDLINE, PsycINFO, Embase and CINAHL for observational studies meeting the inclusion criteria (see protocol for further details). Grey literature was assessed through the EthOS library. Three authors independently performed study screening, data extraction and quality assessment, using a modified Joanna Briggs Institute (JBI) critical appraisal tool.³ Disagreements were resolved by discussion.

We identified a total of 1025 records. Of these, 47 full text articles were assessed for eligibility. Thirteen studies were included in the review. Twelve studies were included in meta-analyses and one study which used the Skindex-29 was described narratively as its score could not be converted to calibrate with the other QoL tools.⁴ Meta-analysis was conducted using a random-effects model, determining the pooled standardized mean difference (SMD) for the QoL score in people with vitiligo compared to those without vitiligo (healthy controls or other skin conditions). Subgroup analyses were conducted to explore heterogeneity.

All included studies were hospital-based and sample size ranged from 16 to 1010 people with vitiligo. QoL was mainly assessed with dermatology-specific tools. Only three studies were deemed to be high quality, scoring between 5 and 7 on the JBI tool.³ The main reason for poor quality was lack of comparability between the vitiligo and control groups in terms of age and sex. There was only one study which reported the presence of associated auto-immune conditions. [Material is available on request to the corresponding author.](#)

The meta-analysis included 1799 people with vitiligo; results are shown in Figure 1. Comparing people with vitiligo to healthy controls, psoriasis patients, atopic dermatitis patients and acne patients, the SMDs were 1.98 (95% CI 1.08 to 2.88; $p < 0.001$; I-squared 95.4%); -0.93 (95% CI -1.36 to -0.49; $p < 0.001$; I-squared 92.7%); -1.25 (95%CI -3.31 to 0.82; $p = 0.236$; I-squared 98.2%) and 0.70 (95% -0.94 to 2.25; p -value=0.419; I-squared 94.2%), respectively.

In the meta-analyses comparing vitiligo to healthy controls and people with psoriasis, (Figures 1 (a) and (b)) all the SMDs are on one side of the forest plot therefore showing all the studies show an effect in the same direction for (a) and (b) separately. On the contrary, in Figures 1 (c) and (d), not all the SMDs are on the same side of the forest plot, therefore it is uncertain which group has greater quality of life which greatly limits these results and is reflected in the overall confidence interval crossing zero.

Subgroup analyses on age, gender, quality score and region could not explain the heterogeneity seen but the small number of studies limited this analysis. The study⁴ that was analysed narratively suggests vitiligo patients are highly affected in the emotional and functional subscales with gender differences. The mean Skindex-29 for vitiligo patients was not statistically significantly different from that of people with mild dermatology conditions such as localized eczematous dermatitis (30.7 v. 27.4; p -value=0.184).

This review demonstrates QoL impairment in vitiligo patients compared to healthy controls, thus emphasizing the importance of assessing QoL in patient consultations, as recommended by the British Association of Dermatologists.⁵ Patients with vitiligo exhibited less quality of life impairment than psoriasis patients. These results are unsurprising given the severity of physical symptoms that may be associated with psoriasis.⁶ The comparisons with acne and atopic dermatitis were inconclusive as the number of included studies were small and gave different results.

Meta-analyses allowed a pooled SMD to be calculated on studies that used different QoL measurement tools; this is a useful methodology that could be applied to other disease areas. However, the review is limited by high heterogeneity due to methodological and clinical differences between the included studies, and this could not be explained by the factors we were able to extract data for. There has been

substantial research conducted which shows specific subgroups of people with vitiligo are more likely to have loss of QoL, for example those with darker skin or from southern asian cultures.^{7,8}

The main methodological limitation of the included studies was the use of the DLQI on healthy controls (in five studies), as it is a dermatology-specific tool and may not be valid for healthy controls. Also, given the asymptomatic nature of vitiligo, the DLQI may not be as sensitive as vitiligo-specific QoL tools, thus underestimating the impact vitiligo has on QoL. Future research implications include using a valid QoL measurement tool for vitiligo, or a combination of tools should be applied. Population-based studies with appropriate controls are also needed in this area to improve external validity and provide more accurate results.

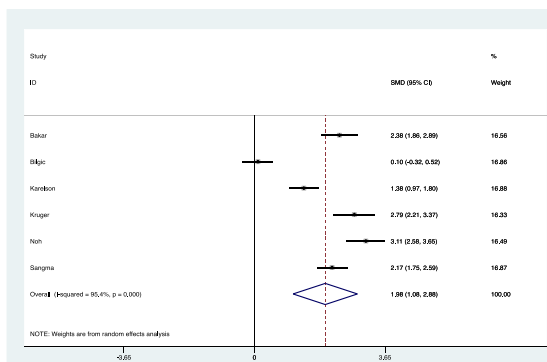
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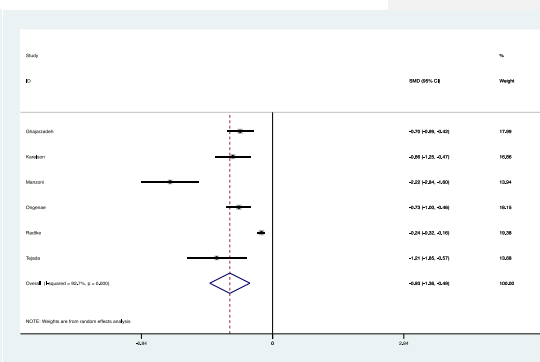
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Figure 1: Forest Plot for Meta-analysis of quality of life scores in Vitiligo compared to (a) healthy controls (b) psoriasis (c) atopic dermatitis (d) acne
 If the SMD and CIs are to the left of the zero line it indicates that quality of life is worse in the control. If the SMD and CIs are to the right of the zero line it indicates worse quality of life in people with vitiligo.

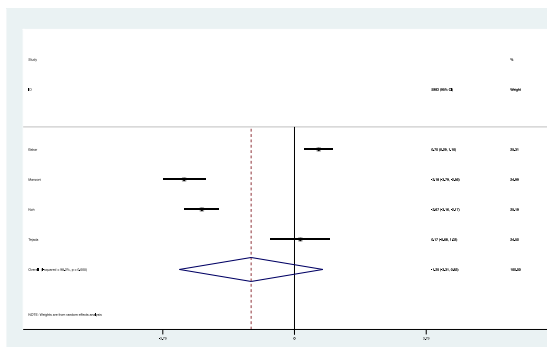
(a) Vitiligo compared to healthy controls



(b) Vitiligo compared to psoriasis



(c) Vitiligo compared to atopic dermatitis



(d) Vitiligo compared to acne

