



Nutrition Society Congress 2024, 2–5 July 2024

Associations between diet quality indices and psoriasis severity: results from the Asking People with Psoriasis about Lifestyle and Eating study

Sylvia Zanesco¹, Thiviyan Maruthappu¹, Christopher E.M. Griffiths², Kathryn V. Dalrymple¹, Rachel Gibson¹ and Wendy L. Hall¹

¹King's College London, School of Life Course and Population Sciences, Department of Nutritional Sciences, London

²King's College Hospital, Department of Dermatology, King's College London

Psoriasis is a chronic inflammatory skin condition arising from gene-environment interactions⁽¹⁾. The role of diet in individuals living with psoriasis is poorly understood with research to date confined to relationships with Mediterranean diet adherence in southern European populations⁽²⁾. Studies are yet to explore the role of dietary patterns in relation to psoriasis severity within a UK-based population. The Asking People with Psoriasis about Lifestyle and Eating (APPLE) study investigated associations between four diet quality indices and psoriasis severity, hypothesising that individuals with more severe psoriasis would report lower diet quality scores.

The APPLE study is an online cross-sectional study (King's College London Research Ethics Committee LRS/DP-21/22-29257; NCT05448352). Eligible participants included adults residing in the UK with diagnosed psoriasis. Participants were recruited using social media (June 2022–January 2024). Validated questionnaires were used to evaluate: 1) psoriasis severity, by the self-assessed simplified psoriasis index, and 2) diet quality, using a 147-item food frequency questionnaire (FFQ) to calculate the Mediterranean Diet Score (MDS), the Dietary Approaches to Stop Hypertension (DASH) score, the Healthy Diet Score (HDS) and the Plant-based Diet Indices (PDIs). Diet-psoriasis associations were adjusted for age, sex, smoking status, energy intake, alcohol use, anxiety/depression diagnosis, and body mass index (BMI)

A total of 270 participants completed the study, of which 82% were female, 85% of White-British ethnicity, with a median (interquartile range (IQR)) age of 40 years (20.0), and a median BMI of 25 kg/m² (8.2). Univariate regression analyses revealed significant negative associations between the HDS, DASH, healthy PDI, original PDI and MDS and psoriasis severity following adjustment for all covariates except BMI ($\beta = -0.179$ to -0.254 , $P < 0.05$). Only the HDS remained statistically associated with psoriasis severity when adjusted including BMI ($\beta = -0.152$, $P < 0.05$). Stepwise multiple linear regressions identified meat and poultry from the MDS as predictors for psoriasis severity ($\beta = 0.158$, $P < 0.05$), whilst fruits and nuts ($\beta = -0.140$, $P < 0.05$) and legumes ($\beta = -0.130$, $P < 0.05$) were negatively associated with disease severity.

Participants with lower diet quality scores report more severe psoriasis, with meat/poultry and fruit/nuts revealed as key dietary components that merit further investigation. Previous findings showed that olive oil and fish were independent predictors for psoriasis severity in a smaller Italian sample population⁽³⁾, which were not replicated in this population, possibly due to very low fish intakes in the UK population⁽⁴⁾.

This study contributes to the evidence examining the diet-psoriasis relationships. Randomised controlled trials are required to evaluate causal inferences in relation to the effect of dietary patterns on psoriasis severity.

Acknowledgments

The authors are grateful to the volunteers who took part in the study and to the Psoriasis Association for funding the study.

References

1. Griffiths CE & Barker JN (2007) *Lancet* **370**, 263–271.
2. Ford AR, Siegel M, Bagel J *et al.* (2018) *JAMA Dermatol* **154**, 934–950.
3. Barrea L, Balato N, Di Somma C *et al.* (2015) *J Trans Med* **13**, 18.
4. Scheelbeek P, Green R, Papier K *et al.* (2020) *BMJ* **10**, e037554.