



Co-occurring ASD Mediates Impact of ADHD on Atopic Dermatitis and Acne: A Retrospective Cohort Study

Karima M. Osman, Pauline Gerard, Elijah W. Hale

ABSTRACT

ADHD and ASD are neurodevelopmental conditions that may affect dermatologic health. This study investigated whether ADHD, ASD, or the co-occurrence of both conditions are associated with increased rates of acne and eczema. Using the TriNetX database, which includes over 90 million medical records, four age-, sex-, and race-matched cohorts were created: ADHD only, ASD only, both diagnoses, and neurotypical controls. The prevalence of acne and eczema was then evaluated across these groups. ADHD was associated with higher rates of both conditions, particularly among females, while ASD alone demonstrated a neutral or protective effect, especially in females. The presence of co-occurring ASD appeared to mitigate the dermatologic risks associated with ADHD. These findings suggest that skincare routines tailored for neurodivergent populations may improve outcomes.

INTRODUCTION

ADHD and ASD are associated with impairments in executive functioning, potentially affecting adherence to dermatologic care. Previous studies have shown links between neurodevelopmental conditions and skin disorders. This study investigates the relationship between ADHD, ASD, and the prevalence of acne and atopic dermatitis (eczema), stratified by sex..

METHODS

Data Source: TriNetX electronic medical record database

Design: Retrospective cohort study of patients under 26 years old (2003–2023)

Cohorts:

- ADHD only
- ASD only
- Both ADHD and ASD
- Neurotypical (NT)

Matching: Nearest-neighbor matching based on age, sex, race, and ethnicity

Outcomes: Prevalence and odds ratios for acne (ICD-10: L70) and eczema (L20)

Analysis: Odds ratios with 95% confidence intervals; $p < .05$ considered significant

RESULTS

ADHD-only patients (both sexes) showed increased odds of acne and eczema

ASD-only females had **decreased odds** of acne

Co-occurring ASD and ADHD reduced risk compared to ADHD alone

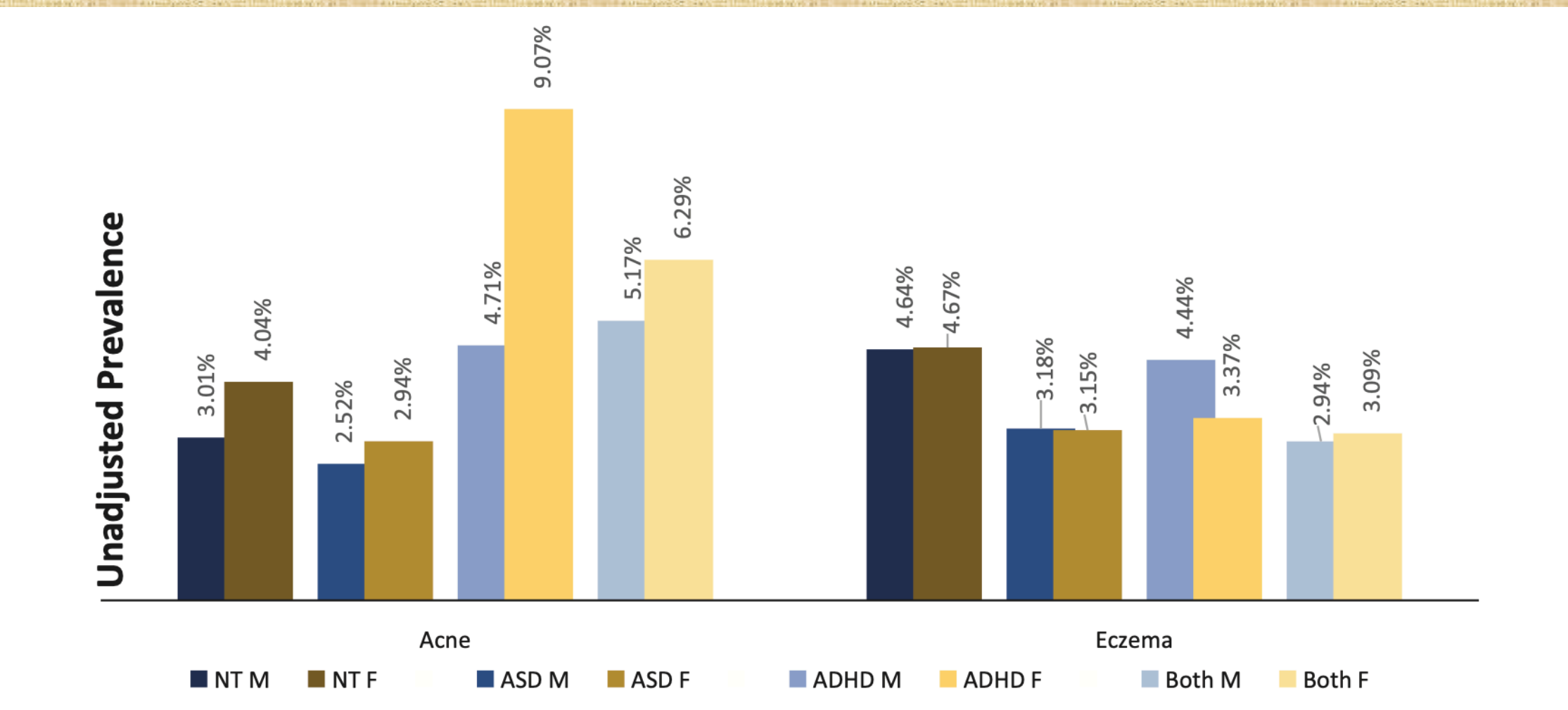


Figure 1. Unadjusted prevalence of acne and eczema in NT males and females and males and females with ASD, ADHD, or both.

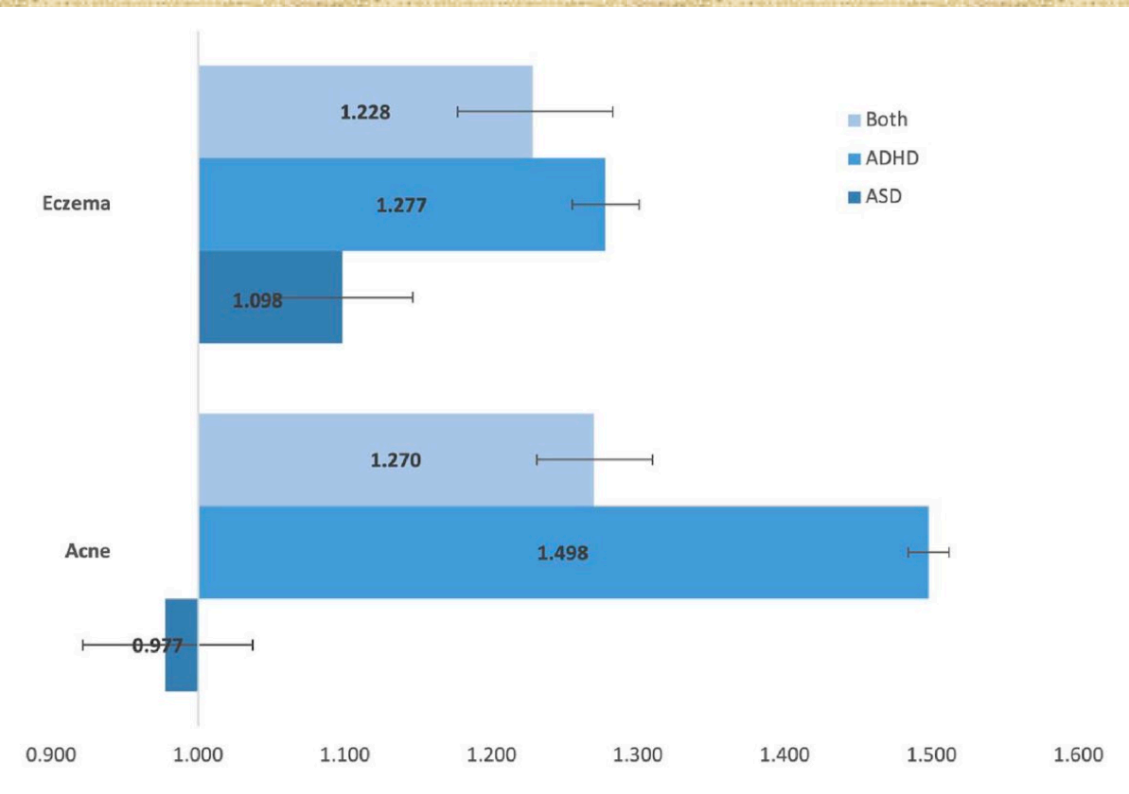


Figure 2. Adjusted odds ratio for males.

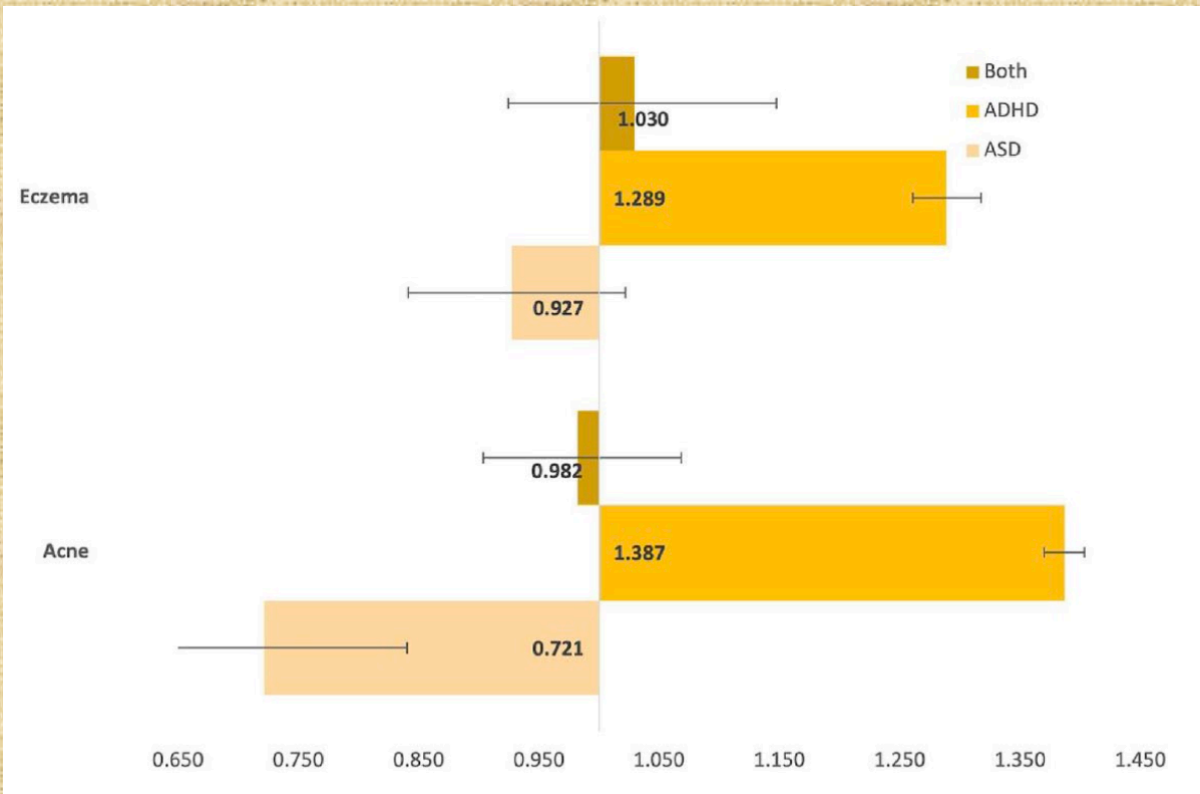


Figure 3. Adjusted odds ratio for females.

CONCLUSION

ADHD is a risk factor for acne and eczema, likely due to challenges in routine adherence

ASD may confer a protective effect, possibly due to preference for routine behaviors

Co-diagnosis (ADHD + ASD) may mediate dermatologic risk, especially in females

Clinicians should tailor skincare education and regimens to neurodivergent populations

REFERENCES

Gupta MA, Gupta AK, Vujcic B. Increased frequency of Attention Deficit Hyperactivity Disorder (ADHD) in acne versus dermatologic controls: Analysis of an epidemiologic database from the US. *J Dermatolog Treat.* 2014;25(2):115-118. doi:10.3109/09546634.2012.736021

Jameson C, Boulton KA, Silove N, Guastella AJ. Eczema and related atopic diseases are associated with increased symptom severity in children with autism spectrum disorder. *Transl Psychiatry.* 2022;12(1):1-7. doi:10.1038/s41398-022-02185-5

Bhate K, Williams HC. Epidemiology of acne vulgaris. *Br J Dermatol.* 2013;168(3):474-485. doi:10.1111/bjd.12149

Frazier W, Bhardwaj N. Atopic dermatitis: Diagnosis and treatment. *Am Fam Physician.* 2020;101(10):590-598.

The authors have no financial relationships to disclose