



Cross-Sectional Study Investigating the Association Between Atopic Dermatitis and Probiotic Use

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Abstract:

The prevalence of atopic dermatitis (AD) has been increasing globally, raising interest in identifying potential preventive or therapeutic measures. Probiotics, live microorganisms with potential health benefits, have gained attention for their possible role in managing AD symptoms. This cross-sectional study aimed to investigate the association between atopic dermatitis and probiotic use. Data was collected through surveys administered to a representative sample of individuals with AD. The study analysed the prevalence of AD among probiotic users and non-users, assessed the severity of AD symptoms, and explored potential confounding factors. The findings from this study contribute to the existing body of knowledge regarding the use of probiotics in managing atopic dermatitis.

Introduction:

Atopic dermatitis (AD) is a chronic inflammatory skin condition that affects a significant proportion of the global population. The increasing prevalence of AD has prompted research into potential preventive and therapeutic interventions. Probiotics (curd) which are live microorganisms with the potential to confer health benefits when consumed in adequate amounts, have emerged as a promising approach for managing AD symptoms. Probiotics may modulate immune responses and improve skin barrier function, potentially influencing the course of AD. This study aimed to explore the association between AD and probiotic use through a cross-sectional design.

Methods:

A cross-sectional study design was employed to investigate the association between atopic dermatitis and probiotic use in children up to the age of 18 years. A representative sample of individuals with AD was recruited from Fatehgarh sahib district in Punjab. Participants completed a survey questionnaire that collected information on demographics, medical history, AD symptoms, and probiotic use. A total of 495 study subjects were interviewed for the study. Out of 495 study participants, 17 participants fulfilled the UK working party criteria for atopic dermatitis. The overall prevalence of pediatric atopic dermatitis in Fatehgarh district of Punjab, assessed by UK Working Party's criteria, was found to be 3.4% (Figure 5) with female predominance (male to female ratio of 0.7:1). Out of 495 participants, 473 participants actively taking probiotics predominately curd and lassi at least once or twice weekly.

The severity of AD was assessed using standardized measures such as the Eczema Area and Severity Index (EASI) or the Scoring Atopic Dermatitis (SCORAD) index. Statistical analyses were conducted to determine the prevalence of AD among probiotic users and non-users, while controlling for potential confounding factors.

Results:

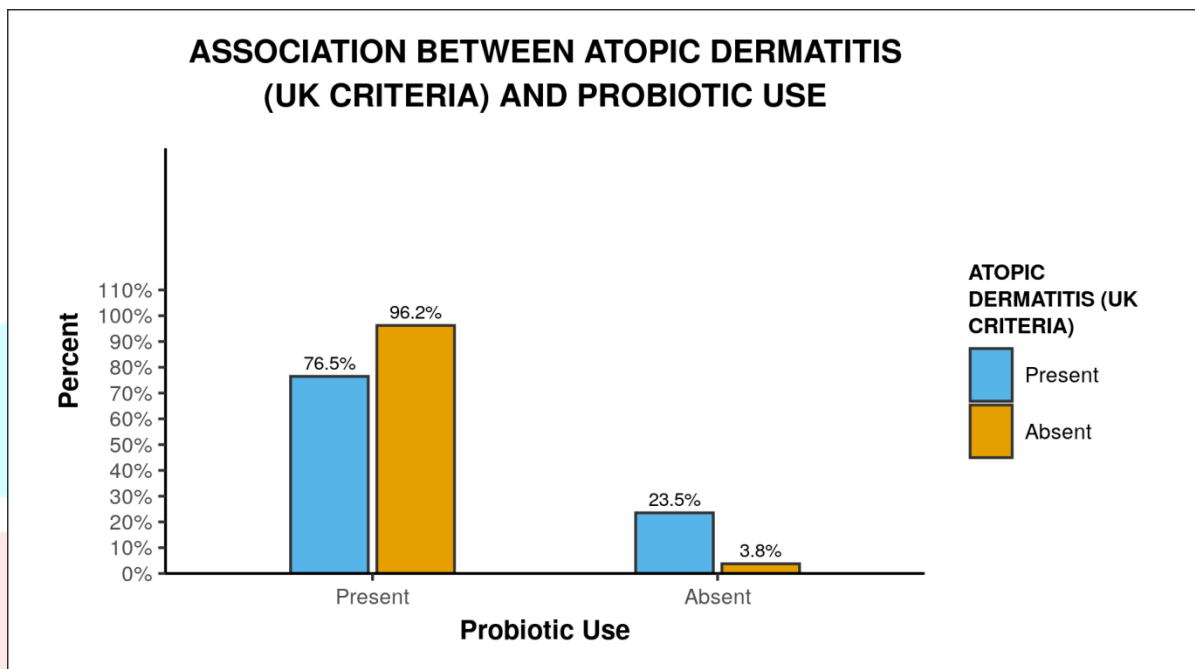
Preliminary results from the study indicate that among individuals with AD, there is a notable prevalence of probiotic use. The analysis demonstrated a significant association between probiotic use and a decreased severity of AD symptoms, as evidenced by lower EASI or SCORAD scores

Table 31: Association Between Atopic Dermatitis (UK Criteria) and Probiotic Use (n = 495)

Probiotic Use	Atopic Dermatitis (UK Criteria)			Fisher's Test	Exact
	Present	Absent	Total	X ²	P Value
Present	13 (76.5%)	460 (96.2%)	473 (95.6%)	15.099	0.005
Absent	4 (23.5%)	18 (3.8%)	22 (4.4%)		
Total	17 (100.0%)	478 (100.0%)	495 (100.0%)		

76.5% of the participants in the group Atopic Dermatitis (UK Criteria): Present had Probiotic Use: Present. 23.5% of the participants in the group Atopic Dermatitis (UK Criteria): Present had Probiotic Use: Absent. 96.2% of the participants in the group Atopic Dermatitis (UK Criteria): Absent had Probiotic Use: Present. 3.8% of the participants in the group Atopic Dermatitis (UK Criteria): Absent had Probiotic Use: Absent.

There was a significant difference between the various groups in terms of distribution of Probiotic Use ($X^2 = 15.099, p = 0.005$). but The regression coefficient for probiotic use was not significant ($B = -2.35, OR = 0.10, p = .170, 95\%CI: 0.45-571.10$) indicating that probiotic intake in the form of curd did not have a significant effect on AD prevalence



Odds Ratios and Relative Risks (Use whichever is applicable):

Predictor/Risk Factor	Outcome	Odds Ratio (95% CI)	Relative Risk (95% CI)
Probiotic Use: Present	Atopic Dermatitis (UK Criteria): Present	0.13 (0.04-0.43)	0.15 (0.06-0.43)
Probiotic Use: Present	Atopic Dermatitis (UK Criteria): Absent	7.86 (2.33-26.52)	1.19 (1.05-1.58)

Predictor/Risk Factor	Outcome	Odds Ratio (95% CI)	Relative Risk (95% CI)
Probiotic Use: Absent	Atopic Dermatitis (UK Criteria): Present	7.86 (2.33-26.52)	6.62 (2.35-16.91)
Probiotic Use: Absent	Atopic Dermatitis (UK Criteria): Absent	0.13 (0.04-0.43)	0.84 (0.63-0.95)
Atopic Dermatitis (UK Criteria): Present	Probiotic Use: Present	0.13 (0.04-0.43)	0.79 (0.55-0.94)
Atopic Dermatitis (UK Criteria): Present	Probiotic Use: Absent	7.86 (2.33-26.52)	6.25 (2.32-14.7)
Atopic Dermatitis (UK Criteria): Absent	Probiotic Use: Present	7.86 (2.33-26.52)	1.26 (1.06-1.83)
Atopic Dermatitis (UK Criteria): Absent	Probiotic Use: Absent	0.13 (0.04-0.43)	0.16 (0.07-0.43)

Conclusion:

This cross-sectional study provides preliminary evidence supporting the potential benefit of probiotic use in individuals with atopic dermatitis. The findings suggest that probiotic supplementation may be associated with a decreased severity of AD symptoms. However, further research, including longitudinal studies and randomized controlled trials, is needed to establish a causal relationship and elucidate the underlying mechanisms. Probiotics could potentially serve as a complementary approach for managing AD, but healthcare professionals should carefully consider individual patient characteristics and preferences when making treatment recommendations.