

Dermatitis in a unique occupational cohort

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BACKGROUND

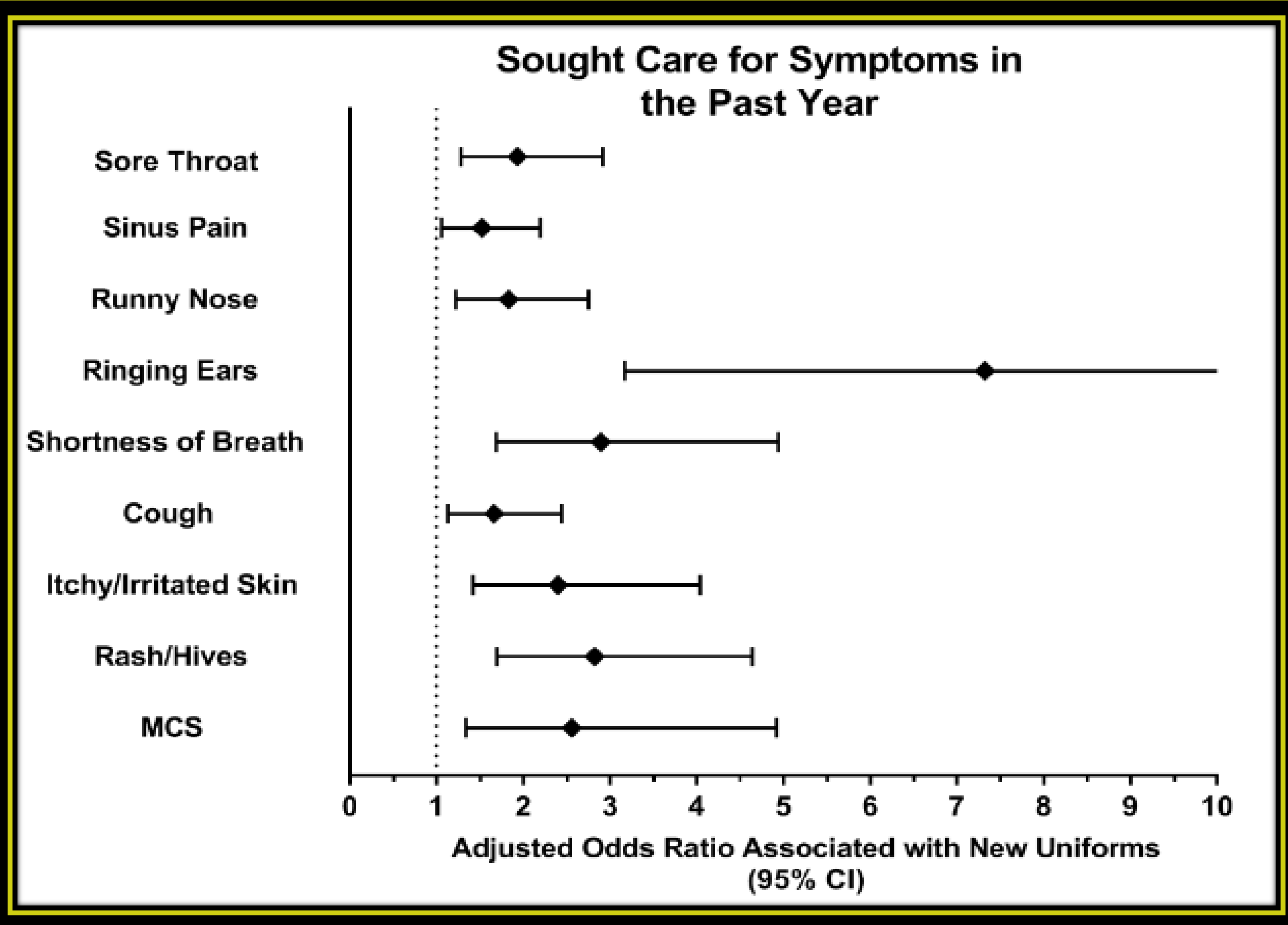
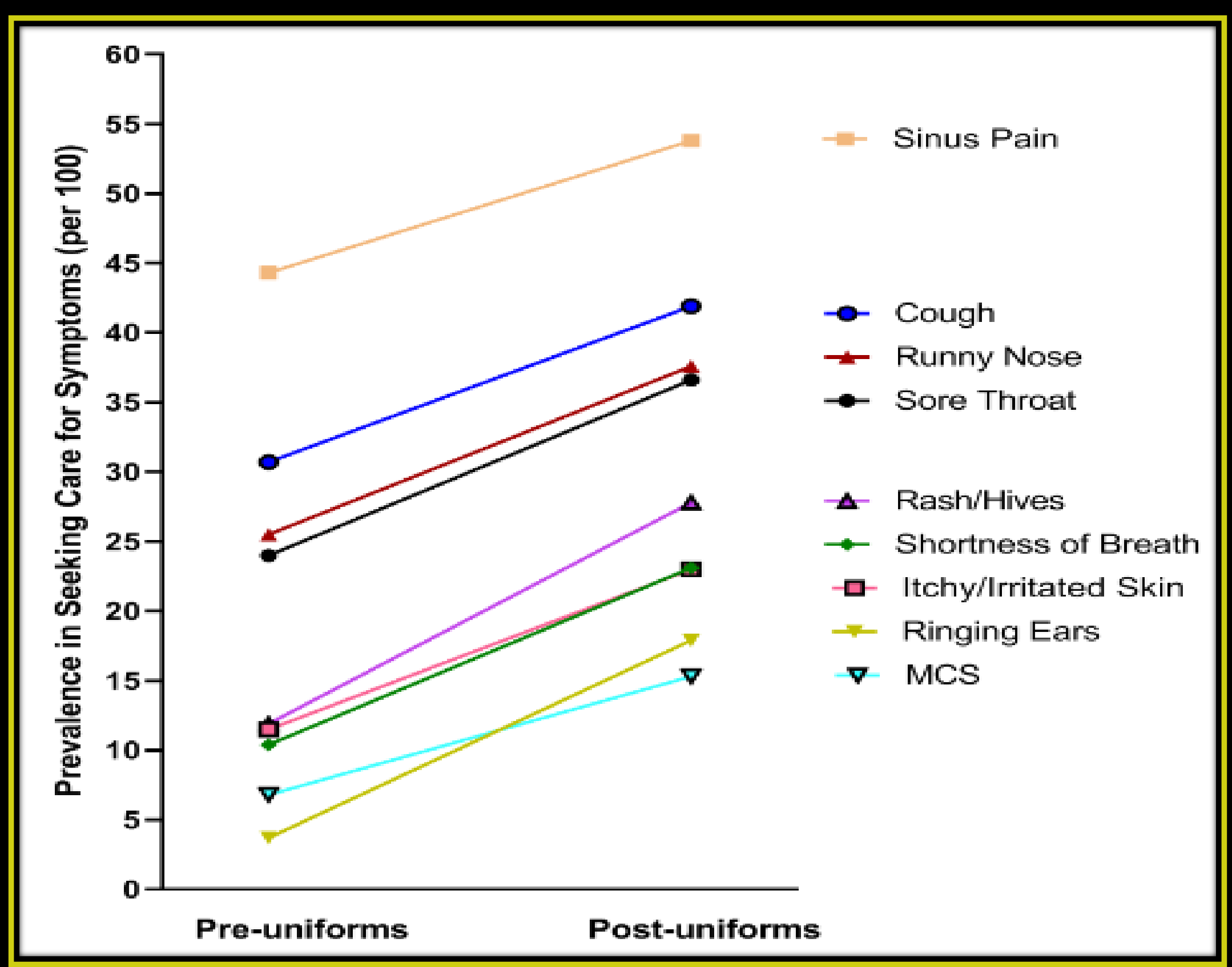
Thousands of flight attendants at several major airlines reported dermatologic symptoms following the introduction of new uniforms. Earlier, we confirmed an increased rate of dermatologic symptoms among Alaska Airlines crew, and now seek to replicate this finding among American Airlines crew. This survey-based prospective longitudinal study investigated skin symptoms in a unique occupational cohort.

METHOD

We conducted a time series analysis of self-reported dermatologic symptoms in cabin crew at American Airlines, who were part of the Harvard Flight Attendant Health Survey. This study did query about uniforms, and dermatologic questions were part of the comprehensive survey questions. The comparative standardized prevalence of dermatological symptoms at different study waves were evaluated via Multivariable Generalized Estimating Equations (GEE) regression modeling, with inverse probability weighting (IPW).

RESULT

Analysis of Symptoms among American Airlines Survey Participants						
Survey Year	2014-2015 (prevalence per 100)	2017-2018 (prevalence per 100)	Total	Adjusted Odds Ratio	95% Confidence Interval	P value
Skin						
Itchy/Irritated Skin						
Experienced symptoms	8.9	16	13.2	2.18	(1.19, 3.99)	0.012
Sought care in the past year	11.5	23	18.5	2.4	(1.42, 4.04)	0.001
Rash/Hives						
Experienced symptoms	7.8	10.3	9.3	1.41	(0.73, 2.71)	0.306
Sought care in the past year	11.9	27.8	21.9	2.81	(1.70, 4.64)	<0.001
Multiple Chemical Sensitivity						
Experienced symptoms	5.7	14.2	10.9	3.09	(1.49, 6.40)	0.002
Sought care in the past year	6.8	15.3	12	2.56	(1.34, 4.92)	0.005



DISCUSSION

These findings suggest a correlation between airline uniforms and observed dermatologic symptoms. Airlines, textile manufacturers, national agencies, and private labs have conducted separate laboratory tests and health hazard reviews on the textiles. While several concerning compounds were detected, none of these have been found to be at potentially hazardous levels. However, flight attendants are exposed to a unique occupational environment, which includes various air contaminants, changes in pressure, oxygenation and humidity, that could potentially mediate these dermatologic effects, and a NIOSH Health Hazard Evaluation suggested that combined chemicals in the uniform could be of causal concern.

CONCLUSION

The study suggests that in order to enhance the practice of complex medical dermatology and occupational dermatology, skin exposure to chemicals in textiles may need to be studied using models evaluating environmental factors such as ultraviolet radiation and ozone chemistry, concentrations, dispersions with sweat and friction, and chemical interactions.