

The Independent Contributions of Asthma Control and Mental Health on Asthma-Related Quality of Life

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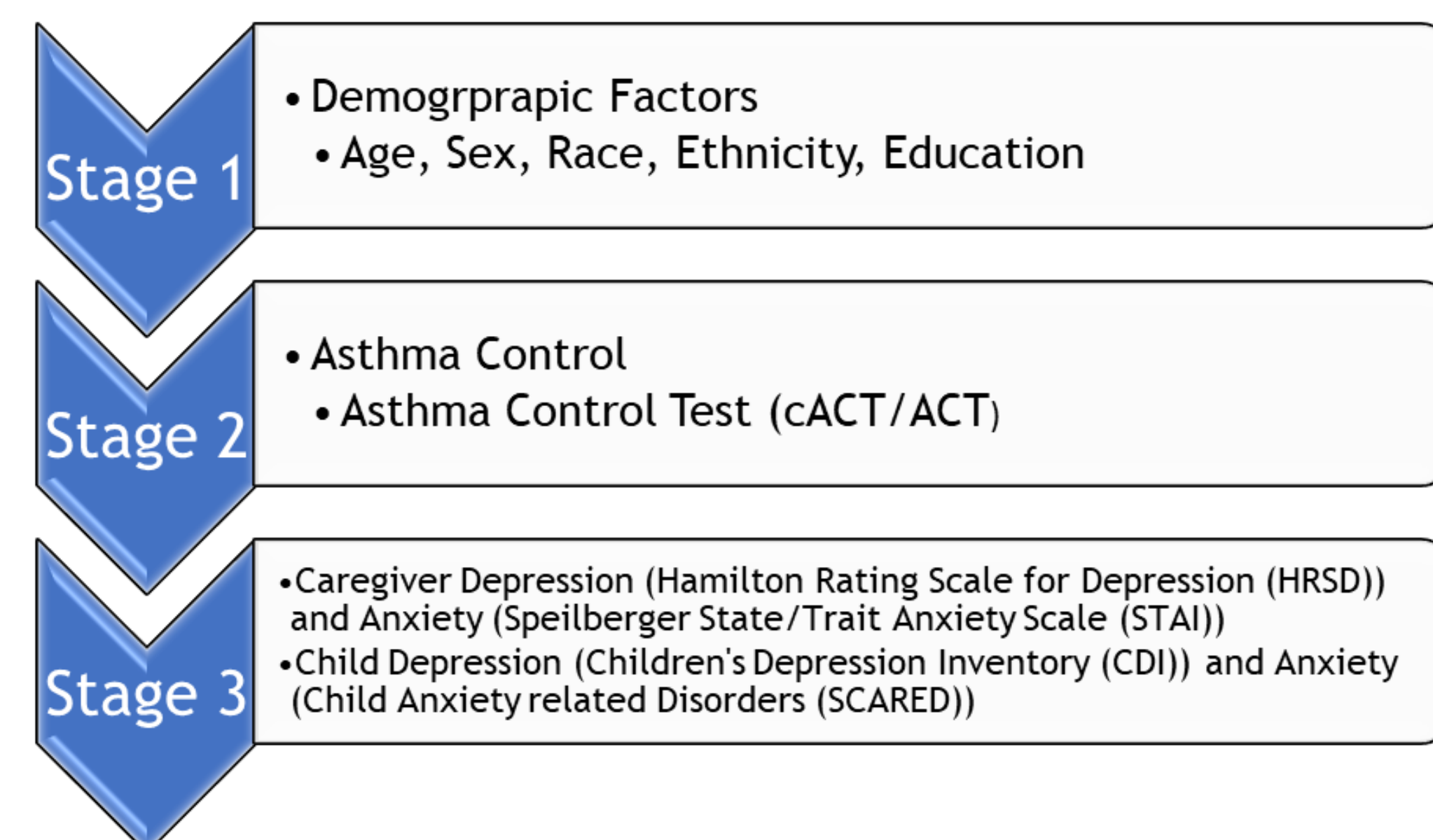


Introduction

- Asthma is a chronic long-term condition that affects the airways in the lungs.
- Asthma affects adults and children with a prevalence of 8.4% and 5.8%, respectively, in the United States.
- Asthma is associated with significantly decreased quality of life in adults and children.
- Several caregiver and child demographic and emotional factors have been implicated in determining pediatric asthma-related quality of life.
- This study examined whether demographic factors, asthma control, caregiver and child depression and anxiety predicted pediatric asthma-related quality of life.

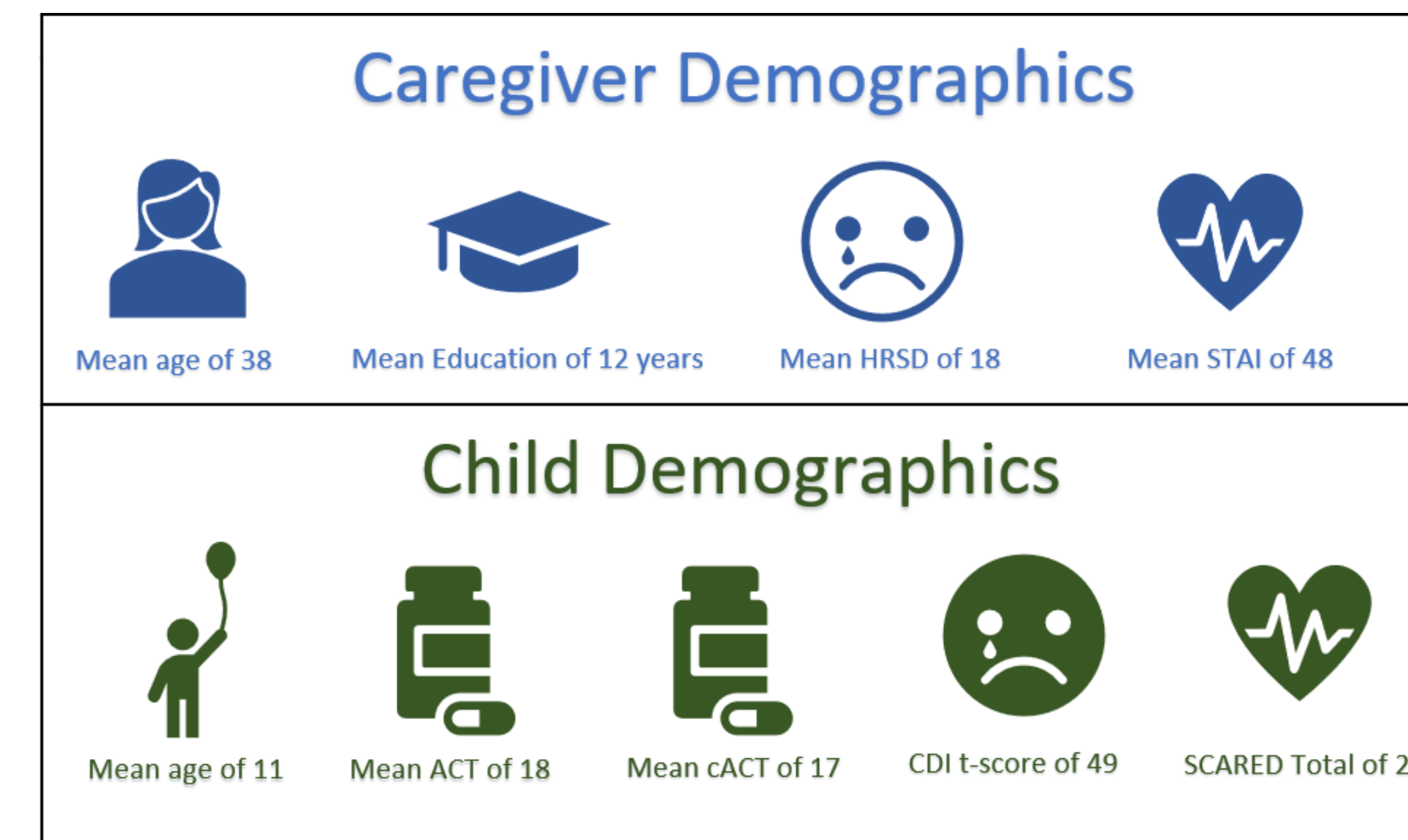
Methods

- This study included children ages 7-17 with persistent asthma and their caregivers (n = 205) who are currently experiencing a major depressive episode and regardless of whether they were receiving antidepressants.
- A three-stage hierarchical linear regression analysis was conducted with the outcome measured by the Pediatric Asthma Quality of Life (PAQOL), a 23-item self-report questionnaire consisting of three domains (asthma symptoms, emotional function and activity limitation) to assess the physical, emotional and social impact of asthma on child quality of life.
- Predictors included demographic characteristics (stage 1); asthma control (stage 2); Caregiver and child depression and anxiety (stage 3).
- To gauge the unique contribution of either depression and anxiety (for caregiver and child) on asthma-related QoL, squared structure coefficients (rs²) were calculated.



Demographics

- The average ages were 11.31 and 38.62 for children and caregivers, respectively.
- The sample of children consisted of slightly more girls than boys (54.1% vs. 45.9%) while caregivers were predominantly female (98%).
- Over half the study sample consisted of Black children (56.6%) followed by White children (34.6%), and 31.7% of the participants were Hispanic/Latino.



Results

- Demographic characteristics accounted for only 6% of the variance in PAQOL scores ($p = .029$).
- Adding asthma control (ACT/cACT) significantly increased the variance explained in PAQOL to 33% ($p < .001$).

Table 1: PAQOL Total

Model	B	SE	β	t	p	95% CI for β	
						Lower	Upper
1 (Constant)	3.998	0.610		6.554	.000	2.795	5.201
Age (child)	0.025	0.034	0.052	0.753	.452	-0.041	0.092
Sex (child)	0.494	0.195	0.177	2.541	.012	0.111	0.878
Race (caregiver)	0.243	0.249	0.087	0.975	.331	-0.248	0.733
Ethnicity (caregiver)	0.046	0.273	0.015	0.167	.868	-0.494	0.585
Education (caregiver)	0.037	0.032	0.084	1.168	.244	-0.025	0.100
2 (Constant)	0.723	0.566		1.277	.203	-0.393	1.839
Age (child)	-0.033	0.027	-0.069	-1.227	.221	-0.087	0.020
Sex (child)	0.142	0.157	0.051	0.903	.368	-0.168	0.451
Race (caregiver)	0.246	0.196	0.088	1.251	.213	-0.142	0.633
Ethnicity (caregiver)	0.046	0.216	0.015	0.214	.831	-0.379	0.472
Education (caregiver)	0.054	0.025	0.123	2.174	.031	0.005	0.104
Asthma Control (BL)	0.236	0.021	0.628	11.003	.000	0.193	0.278

Model	R	R square	Adj. R Square	SE	R Square Change	F Change	df1	df2	p (F change)
1	0.235	0.055	0.035	1.302	0.055	2.762	4	189	.029
2	0.571	0.326	0.308	1.103	0.271	75.471	1	188	.000
3	0.683	0.466	0.440	0.992	0.140	12.087	4	184	.000
4	0.691	0.477	0.446	0.987	0.011	1.954	2	182	.145

Table 1. Hierarchical linear regression results and calculated squared structure coefficients

Table 1: PAQOL Total

Model	B	SE	β	t	p	95% CI for β	
						Lower	Upper
3 (Constant)	3.912	0.833		4.697	.000	2.269	5.555
Age (child)	-0.057	0.025	-0.117	-2.279	.024	-0.106	-0.008
Sex (child)	0.033	0.143	0.012	0.231	.817	-0.249	0.316
Race (caregiver)	0.233	0.176	0.083	1.322	.188	-0.115	0.580
Ethnicity (caregiver)	-0.053	0.196	-0.018	-0.272	.786	-0.440	0.333
Education (caregiver)	0.041	0.023	0.093	1.807	.072	-0.004	0.086
Asthma Control (BL)	0.177	0.021	0.472	8.425	.000	0.136	0.218
HRSD Total (BL)	-0.002	0.016	-0.007	-0.132	.895	-0.033	0.029
STAI State Total (BL)	0.001	0.006	0.012	0.233	.816	-0.010	0.013
SCARED Total (BL)	-0.034	0.007	-0.332	-5.165	.000	-0.047	-0.021
CDI t-score (BL)	-0.016	0.009	-0.108	-1.810	.072	-0.034	0.001
4 (Constant)	4.736	1.045		4.534	.000	2.676	6.797
Age (child)	-0.057	0.025	-0.118	-2.271	.024	-0.107	-0.008
Sex (child)	0.081	0.145	0.029	0.557	.578	-0.206	0.368
Race (caregiver)	0.187	0.178	0.067	1.054	.293	-0.163	0.538
Ethnicity (caregiver)	-0.041	0.195	-0.014	-0.211	.833	-0.427	0.344
Education (caregiver)	0.039	0.023	0.089	1.727	.086	-0.006	0.084
Asthma Control (BL)	0.182	0.021	0.484	8.572	.000	0.140	0.223
HRSD Total (BL)	-0.002	0.016	-0.008	-0.154	.878	-0.033	0.028
STAI State Total (BL)	0.001	0.006	0.012	0.226	.822	-0.011	0.013
SCARED Total (BL)	-0.033	0.007	-0.325	-5.058	.000	-0.046	-0.020
CDI t-score (BL)	-0.034	0.016	-0.225	-2.143	.033	-0.066	-0.003
Age (child) x CDI t-score	0.029	0.016	0.142	1.798	.074	-0.003	0.062
Sex (child) x CDI t-score	0.004	0.016	0.020	0.265	.791	-0.028	0.036

- Adding caregiver and child depression and anxiety further significantly increased the variance explained to 47% ($p < .001$).
- Child anxiety (SCARED) was the only mood or anxiety measure that significantly predicted PAQOL scores ($\beta = -0.332$, $p < .001$).

Conclusions

- After adjusting for demographic characteristics and asthma control, adding child and caregiver anxiety and depression significantly improved the explanatory power of the model regarding child asthma-related QOL.
- Child anxiety was the stronger predictor of child QOL compared to caregiver anxiety and depression.
- The findings suggest that caregiver and child mood significantly influences child asthma-related QOL, particularly child anxiety, beyond the contribution of demographic characteristics and asthma control.

Future Directions

- While the implementation of intervention was not the primary focus of this study, it is essential for clinicians to provide holistic care to screen and address anxiety for children with asthma and promote overall improvement of child QOL.
- Future studies should focus on further investigating the complex relationships among these variables and establish possible causality.

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