

Quality of Life (QoL) Scores and Adverse Childhood Experiences (ACEs) in Children with Congenital Heart Disease (CHD): A Preliminary Analysis



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Background

- With advances in the treatment of congenital heart disease (CHD), it is important to address long term effects on physical, psychological, and social life contexts.
- Quality of Life (QoL) surveys can be used to help measure a disease's effect on a patient's functioning and general life satisfaction.
- Patients with CHD have reported varying QoL, revealing a potential for moderating factors to affect QoL in these patients.
- Adverse childhood experiences (ACEs) include toxic stressors related to abuse, neglect, and household dysfunction.
- There is a dose-dependent link between ACEs and poor health outcomes. ACEs are acquired from 0-18 years of age.
- Protective factors can mitigate the consequences of ACEs.

Objectives

To explore the association between QoL and ACE scores in patients with CHD.

Methods

- English-speaking families in an outpatient cardiology office 1 month-18 years of age were eligible.
- Caregivers completed a validated ACE survey including demographic information. Scores were quantified as 0, 1, 2, and 3+ ACEs.
- Caregivers of patients ≤ 7 yo completed the standard Pediatric Quality of Life Index (PQLI) while subjects ≥ 8 yo completed the disease specific Pediatric Cardiology Quality of Life Index (PCQLI). Scores were calculated with a maximum QoL score of 100.
- Each patient's CHD diagnosis was stratified based on severity into the following groups: no CHD, moderate CHD (acyanotic biventricular CHD with and without intervention), and severe disease (cyanotic CHD/single ventricle).

Results

Age	≤ 7 yo	≥ 8 yo	Total
Child Kaiser ACE score (n (%total))	109 (59.56)	74 (40.44)	183 (100)
0 ACEs	57 (52.29)	32 (43.24)	89 (48.63)
1 ACE	29 (26.61)	28 (37.84)	57 (31.15)
2 ACEs	14 (12.84)	7 (9.46)	21 (11.48)
3+ ACEs	9 (8.26)	7 (9.46)	16 (8.74)
Education (n (%total))			
<High School	5 (4.59)	1 (1.35)	6 (3.28)
HS graduate	19 (17.43)	15 (20.27)	34 (18.58)
Some college	26 (23.85)	17 (22.97)	43 (23.50)
College grad	40 (36.70)	27 (36.49)	67 (36.61)
MS/Dr	19 (17.43)	14 (18.92)	33 (18.03)
Household Income (n (%total))			
<50K	49 (46.67)	27 (36.49)	76 (42.46)
50-99K	28 (26.66)	23 (31.08)	51 (28.49)
$\geq 100k$	28 (26.67)	24 (32.43)	52 (29.05)
CHD Severity (n (%total))			
None	11 (10.09)	12 (16.21)	23 (12.57)
Moderate	56 (51.38)	35 (47.30)	91 (49.73)
Severe	42 (38.53)	27 (36.49)	69 (37.70)

Table 1: Demographics of the patient sample

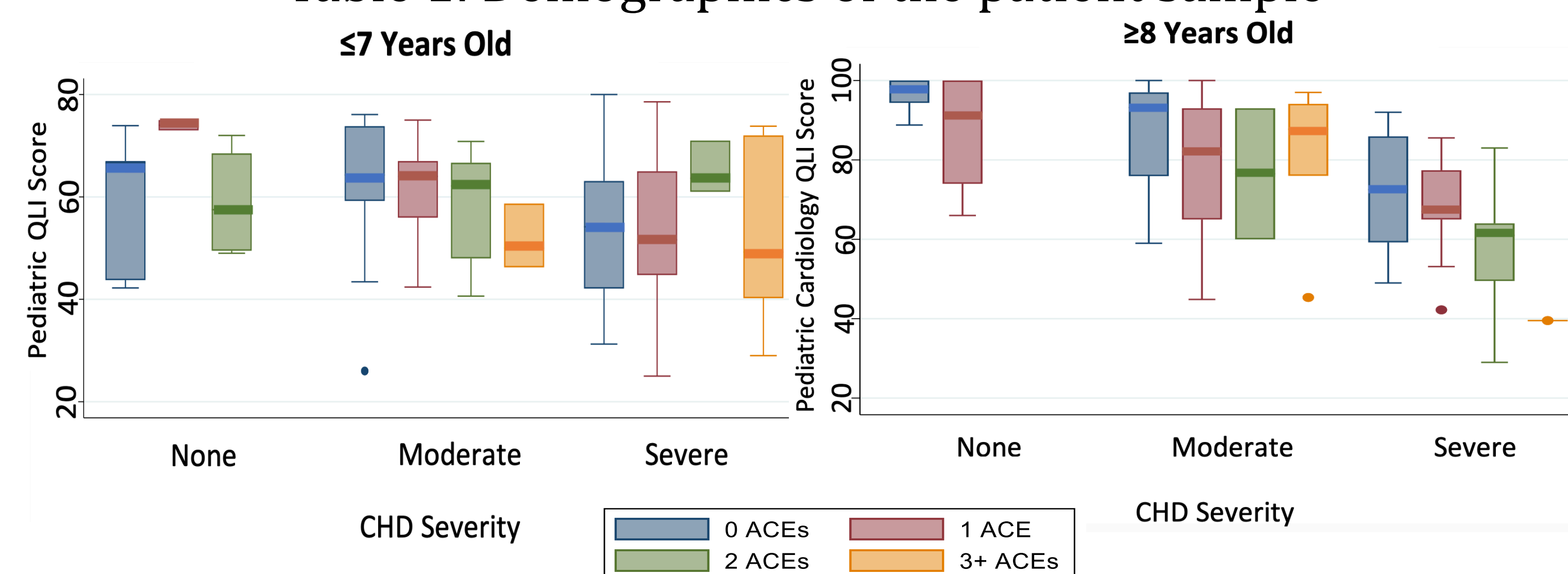


Figure 1: PQLI and PCQLI scores in relation to ACE scores stratified by CHD severity

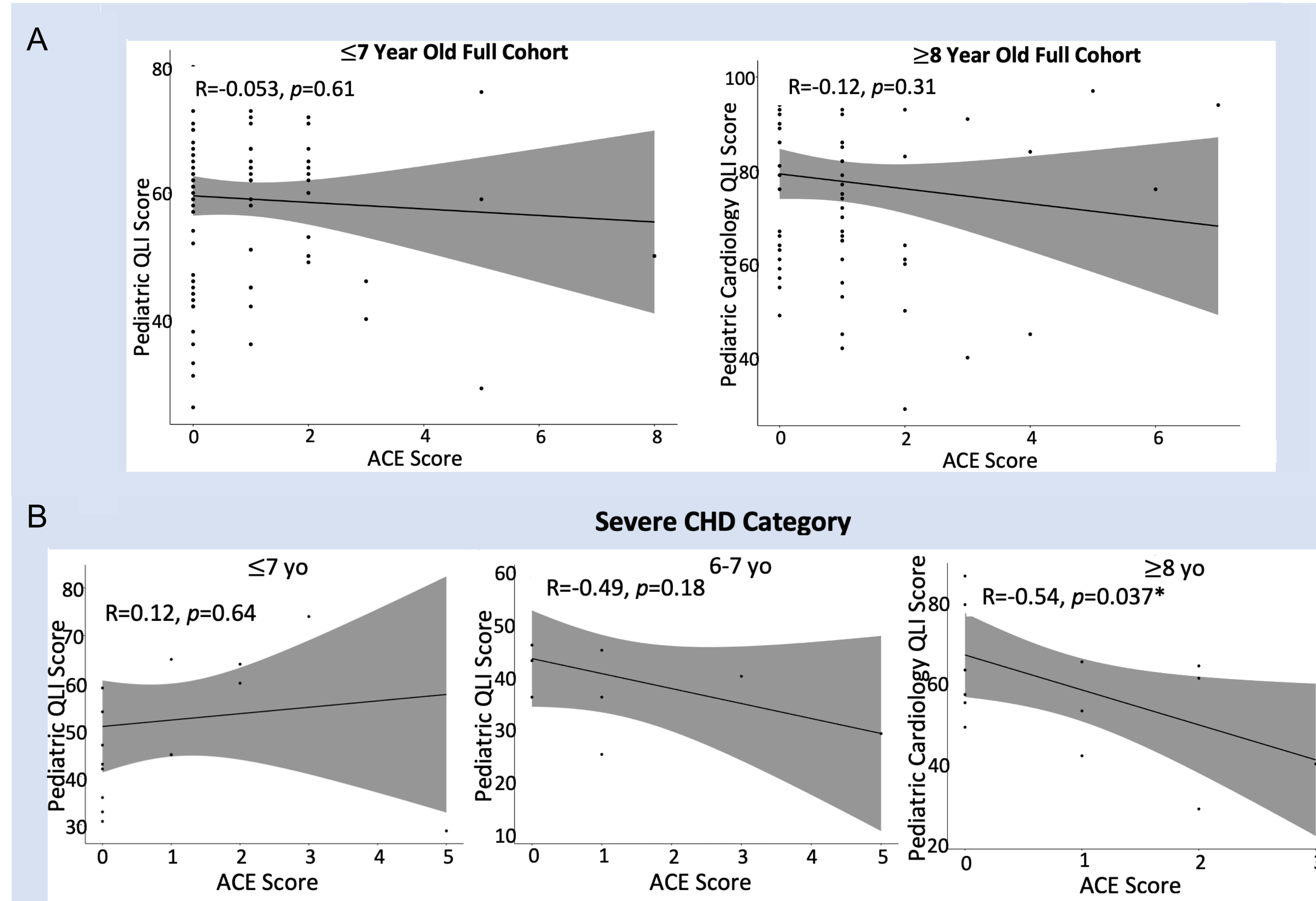


Figure 2: PQLI and PCQLI scores in relation to ACE scores in the A) Full Cohort and B) Severe CHD Category grouped by age

Discussion & Conclusions

- A dose-responsive relationship was not found between QoL and ACEs alone.
- Stratified by disease severity, there appears to be a potential relationship between ACEs and QoL (Figure 1).
- There is a negative correlation between ACE score and QoL in the ≤ 7 yo and ≥ 8 yo full cohort that does not reach significance (Figure 2A).
- There is a strong, significant correlation between QoL and ACE scores in the ≥ 8 yo severe group; the most vulnerable of our CHD patient population (Figure 2B).
- The trend between QoL and ACE score in the ≤ 7 yo Severe CHD group appears to begin in school aged children (≥ 6 yo) (Figure 2B).
- There was a no significant correlation between QoL score and Household Income ($R=0.069$, $p=0.37$) or Parent Education ($R=0.047$, $p=0.54$).
- The relationship between ACE exposure and QoL is seen most clearly in school-age, severe CHD patients. Programs to build resiliency in school aged children may be of particular importance.

References

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