

Summary

- Few studies have examined the link between demographic factors and concussion outcomes for children.
- We used the PedsQL inventory to determine if race and/or child's primary language spoken were associated with different quality of life (QOL) outcomes one month post concussion.
- There was no difference in overall quality of life for participants with respect to race or language, but Spanish speaking children demonstrated greater school functioning.

Introduction

329,000 individuals under the age of 19 received an ED diagnosis of concussion or mild Traumatic Brain Injury (TBI) in 2012. Prior studies have shown:

- Hispanic white (HW) children had worse QOL outcomes than non-Hispanic white (NHW) children up to three years after TBI
- HW children are less likely to receive mental health services or outpatient speech therapy after a concussion than NHW children

Hypothesis: children with a race other than NHW and non-primarily English-speaking children will have worse QOL one-month post-concussion than NHW children and primarily English-speaking children, respectively

Secondary outcomes: impact of race and language on school support and school days missed

Methods

This is a **retrospective observational cohort study** that analyzed data collected at a Level One Regional Pediatric Trauma Center

Study participants: 8-18 year-olds with concussion at CHCO ED

Measurement: PedsQL inventory at injury time and one-month post-concussion, questionnaire on school support and days missed

Analysis: PedsQL scores below the following values indicated significantly worse QOL compared to age matched healthy peers: overall <69.7; sub scores – Physical <72.9, Emotional <59.6, Social <66.6, and School <62.9

Results

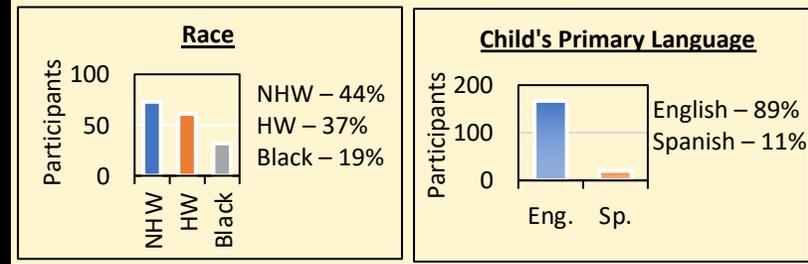


Figure 1. Race and Primary Language of Study Participants. n = 187.

| | NHW (n=73) | Hispanic White (n=61) | Black (n=32) | p-value |
|--|-------------|-----------------------|--------------|---------|
| PedsQL Total at 30-day Follow-up, mean (SD): Total Score | 81.3 (15.4) | 82.8 (14.9) | 83.5 (16.9) | 0.76 |
| Abnormal PedsQL at 30-day Follow-up: Total Score <69.7 | 19 (27.9%) | 13 (22.4%) | 7 (23.3%) | 0.75 |

Table 1. PedsQL Scores by Race. No statistically significant differences in total score or sub scores at 30 days follow-up were found between NHW, HW, and Black children.

| | English (n=167) | Spanish (n=20) | p-value |
|---|-----------------|----------------|-------------|
| PedsQL Total at 30-day Follow-up, mean (SD) | 82.1 (15.6) | 85.7 (13.6) | 0.33 |
| Total Score | 74.6 (20.8) | 85.5 (19.6) | 0.03 |
| School Functioning Summary Score | | | |
| Abnormal PedsQL at 30-day Follow-up | | | |
| Total Score <69.7 | 39 (24.8%) | 3 (15.8%) | 0.57 |
| School Functioning Summary Score <62.9 | 50 (31.9%) | 1 (5.3%) | 0.01 |

Table 2. School functioning Summary Score by primary language. Primarily Spanish-speaking children reported higher school functioning than primarily English-speaking children.

| | NHW (n=73) | Hispanic White (n=61) | Black (n=32) | p-value |
|------------------------------|------------|-----------------------|--------------|------------------|
| Received Support from School | 46 (74.2%) | 18 (32.1%) | 10 (37.0%) | <0.001 |

Table 3. School Support by Race. There was a significant difference in the frequency with which children of different race and ethnicity received school support.

Discussion

Key takeaways:

- School support was different for different races and ethnicities, which is consistent with prior studies.
- Surprisingly, Spanish-speaking children tended to report higher scholastic QOL after concussion than English speaking children
- There were no correlations between race and primary language spoken with overall QOL one month after concussion

Study limitations:

- Retrospective secondary analysis
- Only two languages assessed
- Did not have baseline quality of life for patients prior to injury

Future Directions:

- Study investigating why Spanish speaking children had higher reported QOL than English speaking children
- Study evaluating more languages than just Spanish vs English
- Efforts to decrease disparities in follow-up care

References

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2. Jimenez, N., et, al (2017). Utilization of mental health services after mild pediatric traumatic brain injury. Pediatrics, 139(3).
3. Howell, D. R., et, al (2019). Quality of life and symptom burden 1 month after concussion in children and adolescents. Clinical pediatrics, 58(1), 42-49.