

BACKGROUND

Although autism spectrum disorders (ASD) and attention deficit/hyperactivity disorder (ADHD) have been associated with higher risk of specific types of burns, mechanisms and circumstances of injury should be investigated for prevention and education.

METHODS

A multisite retrospective review of 841 patients treated at pediatric burns hospitals assessed a subsample of Burn Outcomes Questionnaire (BOQ) data collected from years 2001 to 2010. Demographic and clinical characteristics of burn injury were compared.

The current study evaluates burn mechanisms and patients diagnosed with ASD/ADHD as indicated in the co-morbid conditions field of the BOQ through logistic regression analyses.

RESULTS

Of the 841 patients who completed the BOQ, there were 227 patients with diagnoses of ASD/ADHD.

Table 1. Characteristics and burn mechanisms in ASD/ADHD pediatric patients

Characteristics	Contact	Electrical	Fire	Flash	Friction	Scald	Unknown	Total
Count of Mechanism								
Female	3	1	37			12	2	55
Male	3	15	125	1	1	22	5	172
Total Count of Mechanism	6	16	162	1	1	34	7	227
Average of Age at Burn Injury								
Female	8.6	11.5	8.5			5.0	17.1	8.0
Male	3.6	13.6	11.3	17.5	7.9	8.1	5.6	10.8
Total Average of Age at Burn Injury	6.1	13.4	10.7	17.5	7.9	7.0	7.9	10.2
Average of %TBSA at Admission								
Female	3.3	75.0	46.5			35.8	6.0	41.5
Male	31.3	40.0	38.7	8.0	33.5	22.4	49.8	36.7
Total Average of %TBSA at Admissic	17.3	42.2	40.5	8.0	33.5	27.3	41.0	37.8

Pediatric burn patients with ASD/ADHD are 1.80 times as likely to have sustained burn injury due to Play than the reference group and have 2 times the odds (odds ratio [OR]: 2, [95% confidence interval (CI): 1.32, 3.03], $P < .001$).

Pediatric patients with ASD/ADHD are 4.06 times as likely to have sustained burn injury due to Self-Infliction Not Play and have 4.18 times the odds (OR: 4.18, 95% CI (1.47, 11.89), $P < .01$).

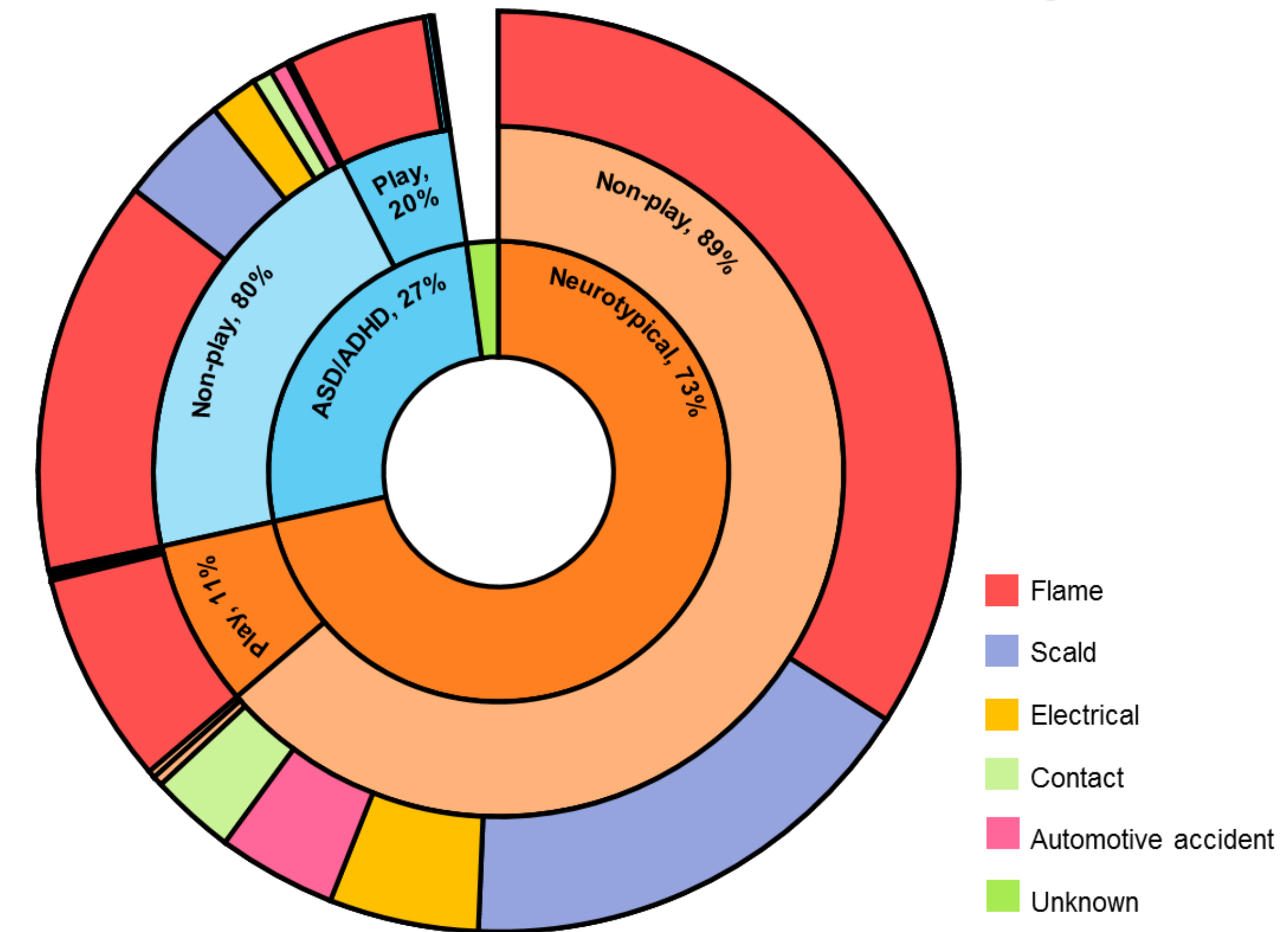
Figure 1. Comparison of burn mechanisms and cause based on diagnosis

Though patients with ASD/ADHD are more likely to sustain burn injury from play than the reference group, flame and scald burns are most prevalent in both ASD/ADHD and neurotypical pediatric patients.

Patients with ASD/ADHD were older than the reference group:

- Total (10.2 years, 8.32 years, $P < .0001$).
- Self-Infliction (10.7 years, 8.04 years, $P < .001$),
- Play (10.7 years, 8.27 years, $P < .01$), and
- Self-Infliction Not Play (10.7 years, 4.40 years, $P = .03$).

Comparison of burn mechanisms and cause based on diagnosis



MAIN FINDINGS

The research suggests that pediatric burn patients with ASD/ADHD are more likely to sustain burn injury through Play and other methods of Self-Infliction.

Pediatric patients with ASD/ADHD are older than the reference group. Difference in age is partly due to older patients who sustained burn injury secondary to seizure.

These burns mostly present as contact and scald burns occurring in outdoor settings or kitchens. Patients without ASD/ADHD were predominantly toddler and preschool aged, and presented with scald and contact burns related to bathing and feeding.

DISCUSSION

Further research is needed to better understand ASD/ADHD and burns, with particular emphasis on differentiating the 2 diagnoses and burn etiology. Patients with ASD/ADHD and caregivers may benefit from research in burn injury risk for prevention and counseling.

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