

Increased risk of injury in children with developmental disabilities

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Abstract

The objective of this study was to examine injury risk in children with autism, ADD/ADHD, learning disability, psychopathology, or other medical conditions. Children aged 3–5 years who participated in the National Survey of Children's Health were included. Six study groups were analyzed in this report: autism ($n = 82$), ADD/ADHD ($n = 191$), learning disability ($n = 307$), psychopathology ($n = 210$), other medical conditions ($n = 1802$), and unaffected controls ($n = 13,398$). The weighted prevalence of injury in each group was 24.2% (autism), 26.5% (ADD/ADHD), 9.3% (learning disability), 20.5% (psychopathology), 14.6% (other medical conditions), and 11.9% (unaffected controls). Compared to unaffected controls, the risk of injury was 2.15 (95% confidence interval (CI): 1.00–4.60), 2.74 (95% CI: 1.63–4.59), 2.06 (95% CI: 1.24–3.42), and 1.26 (95% CI: 1.00–1.58) in children with autism, ADD/ADHD, psychopathology, and other medical conditions, respectively, after adjusting for child sex, child age, number of children in the household, child race, and family poverty level. Children with autism, ADD/ADHD, and other psychopathology were about 2–3 times more likely to experience an injury that needs medical attention than unaffected controls. Future studies need to clarify the extent to which injuries in young children with autism, ADD/ADHD, and psychopathology are related to core symptoms, comorbid conditions, associated behaviors, or unintentional injuries due to lack of additional supervision from caregivers.

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The excessive morbidity and mortality that result from injury in young children is well recognized; in fact, Healthy People 2010 lists it as a targeted health indicator for reduction (U.S. Department of Health and Human Services, 2000). In 2003, unintentional injury was the leading cause of death in children aged 3–5 in the United States (Centers for Disease Control and Prevention [CDC], 2005). Drowning, suffocation, and poisoning comprised more than 1/4 of these deaths (CDC, 2005). According to data from the National Hospital Ambulatory Medical Care Survey, the annual rate of injury-related emergency department visits was 17.8 per 100 persons per year in children 1–4 in 2004 (McCaig & Nawar, 2006). Of injury-related emergency department visits in 2004, an estimated 12.8 per 100 persons per year in the 1–4 age group were nonfatal based on data from the National Electronic Injury Surveillance System-All Injury Program (CDC, 2005). The literature consistently reports higher rates of unintentional injury in boys compared to girls (Rowe, Maughan, & Goodman, 2004; Scheidt et al., 1995; Soubhi, Raina, & Kohen, 2004). Other correlates of childhood injury reported in previous studies include younger child age, larger family size, lower level of family socio-economic status, and the child being of the white race (Pastor & Reuben, 2006; Rowe et al., 2004; Soubhi et al., 2004).

Evidence indicates that children with developmental disabilities or chronic medical conditions are at a higher risk for injury or accident than are children without these conditions (Xiang, Stallones, Chen, Hostetler, & Kelleher, 2005). It has been suggested that this risk could be due to characteristics in the children that result from their disabilities, such as impaired motor control, cognitive impairments, or antisocial behavior (Leland, Garrard, & Smith, 1994; Limbos, Ramirez, Park, Peek-Asa, & Kraus, 2004; Ramirez, Peek-Asa, & Kraus, 2004; Rowe et al., 2004; Sherrard, Tonge, & Ozanne-Smith, 2001; Slayter et al., 2006). Family factors, such as poor parental supervision, are another proposed explanation for childhood injuries (Bennett Murphy, 2001; Schwebel, Hodgens, & Sterling, 2006; Soubhi et al., 2004). A recent study has shown that poor parental supervision may have played a critical role in the increased risk of injury in children with behavioral disorders (Schwebel et al., 2006). The authors reported that maternal neglect of children's dangerous behaviors was the strongest predictor of injury in these children. Due to differences in characteristics that accompany childhood disabilities and the different family factors that may be associated, the risk of injury may vary across disability types. For example, some disorders tend to be associated with more comorbidities. Autism is an example of a disorder that commonly co-occurs with other disorders or disabilities, such as ADHD, epilepsy, cognitive impairments, or motor deficits (Canitano, 2007; Danielsson, Gillberg, Billstedt, Gillberg, & Olsson, 2005; Gurney, McPheeters, & Davis, 2006; Leyfer et al., 2006; Matson & Nebel-Schwalm, 2007; Rinehart et al., 2006). These comorbidities can potentially increase the risk of injury in young children if a supportive environment is not provided.

Although numerous studies have reported rates of injury in individuals with intellectual disabilities in general, limited data have been reported in young children with specific developmental disabilities, with the exception of ADD/ADHD. Sherrard et al. (2001) conducted a longitudinal study in a group of intellectually challenged individuals aged 5–29 years in Australia and reported the rate of injury hospitalizations in these individuals to be twice that of the general population. Another study reported that the odds of having an accident for children with ADHD under 12 years of age were twice that of controls (Swensen et al., 2004). Although injuries in children with ADD/ADHD have been documented, the extent to which children with autism are at a higher risk of injury and accident has not previously been described in any age group. Furthermore, very few studies have been conducted to examine the link between injury and psychopathology and other medical conditions in young children. In a recent study, both

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