

## Television and Childhood Injuries: Is There a Connection?

**F**ourteen years ago the American Academy of Pediatrics published an initial report<sup>1</sup> on the potential of television to stimulate aggressive and violent behavior, and since then considerable evidence has been accumulated to support these preliminary findings.<sup>2-7</sup> In 1976, Daven et al<sup>6</sup> reported on 3 cases of children severely injured while trying to imitate motorcycle daredevil Evel Knievel. After numerous studies of television influence on real-life violence, including 2 major government commissions, the industry is experimenting with a 7 to 9 PM, "Family Hour" from which violence, along with sex, has been largely banished. In 1973, 18 032 young Americans, 15 to 24 years of age, died in motor vehicle crashes, 5182 were murdered, and 4098 committed suicide. The death rate, for this age group, was 19% higher in 1973-1974 than it had been in 1960-1961, owing entirely to deaths by violence.<sup>7</sup> Despite these various studies, however, we still know very little about the effect that television exerts on the intellectual and emotional development of children. According to several reports,<sup>1</sup> an average child and adolescent watches television between 21 and 23 hours per week and this fact may lead us to suspect that, as this activity is the leisure activity that takes up the greater part of day, the child will not be involved in other potentially more injury-generating pursuits and thus television viewing will tend to result in a reduction in injuries. Nevertheless, from another standpoint, the influence of television on the child's emotional adaptation to his or her environment<sup>2,7</sup> could well be related to a greater incidence of accidents, a conclusion that remains to be verified.

The aim of this study was to compare television viewing time in a cohort of children hospitalized because of injuries or for some other reasons.

**Patients, Materials, and Methods.** This is a study carried out at the Santa Ana Hospital in Motril (a province of Granada, Spain) between October 1995 and June 1996. The adult accompanying every child admitted to the pediatric ward of the hospital during that period was asked to fill out a form in which they were asked to provide each parents' age in years, the number of hours per day their son or daughter habitually watched television, the number of siblings, the number of television sets in the household, the television channel that is seen preferably in the house, the favorite type of program chosen by the parents, and the attitude the parents had to the type of programs their offspring watched. We collected 221 questionnaires. Part of the information provided was whether the child had been admitted for reasons of incidents that caused physical injuries, such as fractures, multiple contusions, or burns; 47 of the patients fell into this category. To evaluate the relationship between the risk of accidents among children and the length of time they spend watching television, we used a logistical regression model<sup>8</sup> within which we also incorporated the existence of variables that might confuse or modify the effect, such as the existence of first-order interactions.

We have evaluated several regression models to explain adequately the risks of injuries to children, using the minimum number of variables according to the criteria put forward by Kleinbaum et al.<sup>8</sup> In a first analysis, we separately used the following variables: parents' supervision of television viewing, hours per day the child devoted to watching television, and the number of television sets in the home.

**Results.** The mean ( $\pm$  SD) age of the children admitted was 7.5 ( $\pm$  3.7) years and that of the parents was 38 ( $\pm$  6.7) years for the father and 33.5 ( $\pm$  7.5) years for the mother. According to the different series,<sup>9-11</sup> the incidence of events and their leading to injuries and physical injuries in general in children accounts for between 12% and 22% of hospital emergencies. In our study, the frequency of events causing physical injury was 21%. The 48.9% of children watch television for more than 2 hours a day. The parents of 20.2% of the children admitted because of physical injury considered that screen violence may be a determining factor in future aggressive or antisocial conduct, whereas 28.6% of parents with children admitted for similar reasons had no qualms about the effect of television violence on the emotional development of their children. The parents of 21.3% of such children believed that violence on the television is excessive. We did not find differences among the television channels that were seen by both groups of children ( $\chi^2 = 11.69$ ;  $P = .16$ ). The favorite programs that were chosen by parents of both groups were educational documentaries (in 29 of 140 injured children) and animated features (in 14 of 72 injured children); we did not find differences between the television preferences of both studied groups ( $\chi^2 = 8.63$ ;  $P = .07$ ). The logistic regression model showed an accident relative risk of  $e^{0.2919}$ , or 1.34 for each hour per day of television viewing (95% confidence interval, 1.02 - 1.75); the age of the child and the number of televisions in the home were adjustable variables in the equation. A child viewing 4 hours of televisions per day (the US average) has a relative risk of  $e^{0.2919 \times 4}$ , or 4.3.

**Comment.** As has been established in other studies, the association that exists between the number of hours a day spent watching television and violent conduct cannot be explained by a hypothetical affinity between children of a more aggressive nature and violent entertainment.<sup>12,13</sup> Without any doubt, the effect of television on its viewers is directly related to the number of hours spent in watching per day and the content of the programs watched.<sup>14,16</sup> According to Strasburger,<sup>17</sup> an average child today, on reaching age 70 will have devoted between 7 and 10 years of his or her life watching television. Various studies<sup>18</sup> have related watching television with violent or aggressive conduct during adolescence.

The American Academy of Pediatrics<sup>1</sup> advises that parents should participate in the choice of television program content watched by their children, to be able to better control the effect of television over their child's emotional development. According to the results stemming from our research, only control over the number of hours that children spend watching television will have

any influence on the rate of juvenile injuries. Paradoxically, a child who spends more time watching television and devotes fewer hours to potentially more dangerous physical activities and games is at greater risk of experiencing events that cause physical injuries. We believe that the depiction of a distorted reality on the television screen, which the child perceives as being real, may be of some help in explaining our findings: According to the social theory of learning, certain forms of conduct that entail an element of risk of injury may be stimulated by example, as in this case by watching such conduct on the television screen.<sup>18,19</sup> According to this idea then, children who spend more hours watching television may receive a greater number of distorted messages about reality that become converted into false real-life experiences and distort the child's adaptation to his or her surrounding environment. In the same way that Hapkiewicz and Stone<sup>20</sup> consider more realistic television programs distort one's perception of reality more than those programs with a high fiction content, without a doubt the child's judgment and critical judgment faculty concerning what he or she is watching is based on different motivations<sup>12</sup>; and in any case, the parents' judgment and guidance should be fundamental and decisive. In this respect, Klein et al.<sup>21</sup> find an increase in risk-taking behaviors in teenagers heavily exposed to the mass media; although more studies are needed with regard to this, we can suggest similar pathological mechanisms in children and adolescents. We also feel that the various specialist and government organizations should continue to collect information from family members and the children themselves to study the potentially harmful effect television might have on the emotional and intellectual development of children.

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