A Content Analysis of Safety Behaviors of Television Characters: Implications for Children’s Safety and Injury

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Examined frequency and characteristics of safety behaviors in television programs popular with child audiences. A sample of 52 programs was coded for safety event location, demographic characteristics of safety models, social and physical contexts of safety events, and successful or unsuccessful outcomes of safety behaviors. Results indicate an overall rate of 13 safety behaviors per hour, with over half of all safety behaviors located in commercial advertisements. Most safety behaviors were performed by male adult characters, had limited relevance for children, and were not associated with either positive or negative outcomes. Findings are discussed in terms of their relevance for observational learning of safety behaviors by child viewers.

KEY WORDS: television content; safety; childhood injury.

Television is widely regarded by behavioral scientists as a significant agent of socialization in children’s lives (cf. Huston et al., 1992; Pearl, Bouthilet, & Lazar, 1982). Children begin learning about the social and physical world from television several years before beginning formal education. The premise of this study is that television viewing represents an underinvestigated social influence on children’s safety behaviors and injuries. The specific purpose was to describe the incidence and characteristics of safety behaviors of characters in television programs.
programs popular with child audiences. This analysis focused particularly on content features that might provide child viewers with information about the utility of modeled safety behaviors in their own daily lives.

Unintentional injury is the leading cause of death among children and adolescents beyond the first year of life (National Academy of Sciences, 1985; Rodriguez, 1990). Unfortunately, psychological mechanisms of unintentional injury in children are not well understood (Matheny, 1988; Spielberger & Frank, 1992), although several pediatric psychology sources have delineated frameworks that may guide research investigations of both injury causes and injury prevention (e.g., Peterson & Mori, 1985; Roberts & Brooks, 1987). For example, one conceptualization of psychological factors associated with injury includes antecedent conditions of both the victim (e.g., emotional state) and the environment (e.g., darkness, weather), specific characteristics of the victim (e.g., learning history, personality, developmental level), the victim’s immediate response to the injury, and so on (Peterson, Farmer, & Mori, 1987). Unintentional injury, or prevention thereof, may be influenced, either directly or indirectly, by exposure to television content at several points within such a conceptualization (cf. Atkin, 1989; Potts & Henderson, 1991).

Knowledge of the safety-relevant messages in commercial television content and how those messages may influence children’s safety behavior should be of considerable use by pediatric psychologists, child health specialists, and the like.

Perhaps the primary mechanism by which television viewing may influence children’s injury-relevant safety behaviors is observational learning, which occurs when a child viewer observes a TV character’s behavior and attempts to reproduce the behavior either immediately or at some future time (e.g., Bandura, 1986; Murray, 1980; Stein & Friedrich, 1972). Of particular relevance here are demonstrations that televised models can increase or decrease children’s self-control behaviors such as rule following (e.g., Bandura & Mischel, 1965; Stein & Friedrich, 1972; Wolf, 1973), although self-control of injurious behaviors has not been studied specifically. Also relevant are recent findings that exposure to risk-taking TV models increased children’s self-reported physical risk taking in hypothetical situations (Potts, Doppler, & Hernandez, 1994).

Among the most important determinants of behavior change via observational learning are the rewarding or punishing consequences of a model’s behavior (Bandura, 1965). Thus, for child viewers to learn the utility of modeled safety behaviors, the successful results, that is, injury prevention outcomes, must be apparent. It is conceivable that typical TV content could either facilitate or hinder children’s observational learning of appropriate safety messages. Television programs may present useful, accurate displays of safety behavior, such as characters buckling seat belts prior to driving, but may also depict improbable, risky approaches to safety as well, such as leaping from a speeding car just prior to collision.

Another likely influence of television viewing on safety and injury processes is the gradual shaping of viewers’ knowledge and beliefs about the social and physical world, conceptualized variously as the “cultivation of reality” (e.g., Gerbner,
Gross, Morgan, & Signorielli, 1980; Signorielli, 1990; Signorielli, Gross, & Morgan, 1982) and the construction of cognitive "scripts" (e.g., Huesmann, 1988; Potts & Masters, 1986, 1991; Potts, Masters, & Henderson, 1989). Many studies have reported that exposure to recurring TV themes, such as violent conflict resolution or gender-stereotyped behaviors, is associated with similar beliefs in frequent TV viewers (e.g., Freuh & McGhee, 1975; Greenberg, 1982; Signorielli, 1990; Signorielli et al., 1982; Tan, 1979). Apparently, any theme that is consistently portrayed on TV, realistically or not, comes to be regarded by frequent viewers as representative of the real world. Frequent TV portrayals of risky behavior, dangerous situations, and injury without consequences may influence young viewers to accept such content as valid messages about physical injury and the need, or lack thereof, for safety and precautionary behaviors.

The above mentioned considerations suggest that television portrayals of physical injuries and safety behaviors can influence children's knowledge and overt behavior that may facilitate injury prevention. Thus, it is important to document the "television reality" of safety behaviors as an initial step in the study of the role of television in childhood safety and injury. To date, only a small number of studies have addressed this topic. In a content analysis of injury outcomes to fictional TV characters, Potts and Henderson (1991) found that injuries occurred relatively frequently in children's programs, were likely to result from intentional assault from other characters, and were not likely to be serious injuries; most victims recovered by the next scene. Atkin (1989) and Greenberg and Atkin (1983) examined patterns of motor vehicle driving in TV programs, and found that, although a dramatic increase in seat belt usage occurred between the 1970s and the late 1980s (from 1% of drivers to 23%), the overall majority could not be observed using seat belts. Findings of these studies suggest that safety-relevant behaviors of characters may not be presented consistently or in a manner conducive to social learning of adaptive modeled behavior.

To describe safety-relevant media content available to most children, the present study included measurement of psychologically relevant characteristics of safety behaviors of television characters. A content analysis was performed on a sample of fictional television programs in which all safety behaviors were identified. Characteristics and contexts of these behaviors were coded, including type of behavior, consequences of the behaviors, relevance of the behaviors for children, and demographics of those modeling the behaviors.

METHOD

Program Sample

The goal of the television program selection process was a sample that was highly representative of the fictional programs frequently watched by children,
which, based on recent child viewership research (St. Peters, Fitch, Huston, Wright, & Eakins, 1991), includes situation comedies, action/adventure/drama, and weekday afternoon and Saturday morning cartoons. These programs were sampled from broadcasts by the four major networks (ABC, CBS, NBC, and Fox/Independent) during 1 week in November 1991. Programs were sampled from each day of the week; within categories, programs were selected randomly. Selection was also restricted to time periods when the majority of children’s viewing occurs. The sample consisted of programs broadcast between 3:00-5:00 PM (CST) Monday–Friday, 7:00–9:00 PM Monday–Sunday, and 7:00–11:00 AM Saturday. Also, because the focus of the study concerned fictional entertainment fare, other program types were excluded, such as game shows, newscasts, and talk shows.

To obtain a highly representative sample, a large number of programs from each time slot and category were selected. The resulting sample contained 52 nonduplicated programs. This represented 66% of the total number of relevant programs (n = 77) available during that week. The sample consisted of 8 weekday afternoon cartoons (from series that were broadcast every weekday), 32 prime-time situation comedies, 6 prime-time dramatic programs, and 12 Saturday morning programs (10 animated, 2 nonanimated). Forty-six programs were half-hour long, and 6 were 1-hour long; for the 1-hour programs, only the first and third 15-minute segments were coded.

Coding System

A coding system was developed to identify safety messages and behaviors and the contexts of those events. Initially, certain conceptual boundaries were established in order to facilitate manageable data coding procedures. Specifically, it could be argued that many behaviors are, by definition, safe, because they represent an omission of alternate unsafe behaviors. For example, a character walking on a sidewalk may be displaying safety behavior because she or he is not walking in the street with traffic. However, this argument would require the nearly impossible task of identifying all possible alternatives to a specific behavior, and in fact, virtually all behaviors have potentially unsafe alternatives. Therefore, the present operational definition of safety events included only behaviors of commission, where discrete, observable actions were taken for the specific purpose of preventing personal harm. Safety content categories included:

Because of the passage of time between the recording of the sample of programs in 1991 and the publication of these results, it was considered to be of interest to readers to present information about the continued appearance of the original programs. Examination of current broadcast and cable TV offerings from the same region revealed that approximately 75% of the original sample was still on the air, either as a continuing series or rerun programming. Sixty-three percent of the child audience programs were still broadcast, while 81% of the general audience programs were still broadcast at the time this manuscript was accepted for publication.
Safety Behaviors in Television Programs

Safety Event Location. Safety content was first coded according to the type of program in which it appeared. A logical and natural basis for grouping programs was the intended audience (cf. Center for Research on the Influences of Television on Children, 1983); weekday afternoon cartoons and Saturday morning programs were clearly intended for child-only audiences, while evening prime-time programs were intended for family or general audiences. Safety events were classified as occurring in either child programs or general audience programs. All broadcast material within each half-hour program segment was coded, including both program story plot as well as commercial advertisements or other nonprogram material. Safety events were coded as occurring within either program plot or commercial locations.

Safety Event Type. Any safety-relevant behaviors or statements of characters were coded. Events were coded as either verbal statements (e.g., “Don’t try this at home”; “Watch out, it’s dangerous!”), or behavioral enactments of injury prevention, such as characters buckling seat belts, or jumping from the path of an oncoming object.

Character Demographics. Characters visible on screen who modeled safety behaviors were identified according to demographic attributes. These included (a) species (human, animal, unrealistic/fantasy character); (b) gender (male, female, mixed group); and (c) age (child, teen, adult).

Safety Event Context. The surrounding situation in which a safety behavior occurred was coded for several attributes. Included were (a) harm imminence, or whether the safety behavior was in response to an immediate threat of harm or was a precaution against potential future harm; (b) harm agent, or whether the threat of harm resulted from natural/fortuitous causes or was caused by intentional interpersonal threat; and (c) relevance to children, or whether or not the safety behavior and situation would be realistically applicable to the everyday life of a typical child.

Outcome of Safety Behavior. Safety behavior outcomes were coded as (a) successful, if the behavior successfully and clearly prevented harm; (b) unsuccessful, if the character was harmed despite enacting the safety behavior; or (c) not tested, if the safety behavior was enacted yet no injury agent was present or no immediate danger ever occurred.

Coder Reliability. Two coders were trained on the scoring system using a subsample of the programs and adjacent nonprogram material until they reached a reliability criterion of 85% agreement on the occurrence of a safety behavior, using the reliability formula of 100 (No. of agreements between two raters x 2)/(total events coded by first rater + total events coded by second rater) = % agreement. The first reliability check revealed that the coders were in agreement on 90% of the occurrences, so they proceeded with the final coding effort. Both coders independently viewed and measured the entire sample of programs. Only a few discrepancies (<10) were noted regarding the occurrence of safety events, and those discrepancies were resolved through joint discussion by the coders.
With all safety behavior occurrences thus established, reliabilities for individual content categories (e.g., event type, character demographics) were examined using the formula described above. These reliabilities ranged from 91–99%, indicating a very high level of agreement of the coders on specific values of each content category.

RESULTS

Safety Event Rate and Location. A total of 338 safety events were coded in the week-long sample. Five programs did not contain any safety content, while the remaining 47 contained at least some safety content in either the story line or in adjacent nonprogram locations. The overall rate, across the entire sample, was 13.0 safety events per hour. When safety events were grouped as appearing in either child (n = 20 programs) or general audience (n = 32) program types, rates were somewhat higher in children’s programs, at 16.7 per hour, than in general audience programs, at 10.7 per hour. Safety behaviors were slightly more frequent in commercial/nonprogram locations (n = 187, or 55% of total) than in program plot locations (n = 151, or 45%). Because of the fundamental differences between fictional programs and commercial advertisements (persuasive intent, plot, etc.), separate nonparametric analyses of each content variable were performed for safety events occurring in program plots and those occurring in commercials. Safety event attributes, as distributed across program type (child vs. general audience) and location (program plot vs. commercial), appear in Table I.

Safety Event Type. The distribution of verbal versus behavioral safety events within program plots did not differ significantly across program type, although slightly more verbal messages appeared in child-oriented programs than in general audience programs. When safety events in commercials were examined, most were overt behaviors, and their distribution did not differ according to the program type in which they were located.

Character Demographics. Because of low frequencies, fantasy/unrealistic characters were categorized together with animals. Children’s program plots contained proportionally more safety behaviors by animals/nonhumans than general audience programs (see Table I). A similar pattern was observed for safety events in commercials. Within program plots, the majority of safety behaviors were performed by males, and children’s programs portrayed more male actors of safety behaviors than did general audience programs (see Table I). In commercials, more males performed safety behaviors than females, but this pattern did not differ according to intended audience. The majority of characters enacting safety behaviors in program plots were adults (see Table I). General audience program plots contained more teenage safety actors than children’s program plots.
Table I. Distribution of Safety Event Characteristics

| Content category | Program plot | | Commercials | | |
|------------------|-------------|------------------|-------------|------------------|
|                  | Child (%)   | General (%)      | Child (%)   | General (%)      |
| Event type       |             |                  |             |                  |
| Verbal Behavior  | 55          | 39               | 21          | 21               |
|                  | 45          | 61               | 79          | 79               |
| \(\chi^2(1) = 3.36, \text{ns}\) | \(\chi^2(1) = 0.00, \text{ns}\) |
| Character species|             |                  |             |                  |
| Human            | 34          | 98               | 85          | 97               |
| Nonhuman         | 66          | 2                | 15          | 3                |
| \(\chi^2(1) = 58.56, p < .001\) | \(\chi^2(1) = 10.26, p < .001\) |
| Character gender |             |                  |             |                  |
| Male             | 81          | 61               | 74          | 73               |
| Female           | 15          | 30               | 10          | 16               |
| Mixed group      | 4           | 9                | 16          | 11               |
| \(\chi^2(2) = 8.14, p < .05\) | \(\chi^2(1) = 2.11, \text{ns}\) |
| Character age    |             |                  |             |                  |
| Child            | 12          | 9                | 35          | 4                |
| Teen             | 9           | 30               | 21          | 5                |
| Adult            | 79          | 61               | 45          | 91               |
| \(\chi^2(2) = 11.84, p < .002\) | \(\chi^2(2) = 47.95, p < .001\) |
| Harm imminence   |             |                  |             |                  |
| Immediate        | 40          | 16               | 14          | 7                |
| Potential        | 60          | 84               | 86          | 93               |
| \(\chi^2(1) = 9.41, p < .01\) | \(\chi^2(1) = 2.44, \text{ns}\) |
| Harm agent       |             |                  |             |                  |
| Natural/fortuitous| 62          | 84               | 82          | 99               |
| Hostile          | 38          | 16               | 18          | 1                |
| \(\chi^2(1) = 8.02, p < .005\) | \(\chi^2(1) = 18.88, p < .001\) |
| Relevance to children |            |                  |             |                  |
| Relevant         | 18          | 66               | 48          | 54               |
| Not relevant     | 82          | 34               | 52          | 46               |
| \(\chi^2(1) = 35.59, p < .001\) | \(\chi^2(1) = 0.49, \text{ns}\) |
| Outcome of behavior |              |                  |             |                  |
| Successful       | 21          | 16               | 0           | 8                |
| Unsuccessful     | 16          | 2                | 0           | 4                |
| Not tested       | 63          | 82               | 100         | 88               |
| \(\chi^2(2) = 8.78, p < .01\) | \(\chi^2(2) = 9.47, p < .01\) |

In commercials, more children and teens performed safety actions during child-only programs than during general audience programs.

**Harm Imminence.** Most safety behaviors in program plots were in response to potential future danger, although children's programs were more likely than general audience programs to feature safety in response to immediate danger (see Table I). In commercials, most harm was potential/future and did not differ according to intended audience.

**Harm Agent.** The majority of safety behaviors in program plots were re-
sponses to natural or fortuitous harm, although children's programs were more likely to contain safety actions in response to interpersonal hostility than general audience programs (see Table I). A similar pattern was observed for safety behaviors in commercials.

Relevance to Children. Children's program plots featured more safety behaviors that were judged irrelevant to children than general audience programs (see Table I). The majority of safety behaviors in children's programs were not relevant for children, while the majority in general audience programs were relevant to children. In commercials, child-relevant and -irrelevant behaviors were distributed about equally.

Outcome of Behavior. The majority of safety behaviors were "not tested" and no consequences followed, either in program plots or commercials (see Table I). Children's program plots were more likely to present both successful and unsuccessful safety behaviors than general audience programs. Unsuccessful safety behaviors were presented eight times as often in children's programs as in general audience programs.

DISCUSSION

From these findings, we can conclude that commercially broadcast television programming popular with children does not present optimal portrayals of safety behavior. Based on social learning principles pertaining to observational learning, the models in this sample of programs, especially programs designed specifically for children, do not demonstrate consistently successful behaviors or behaviors with relevance to child viewers. Perhaps the most important variable in modeling processes concerns the consequences of a model's behavior (Bandura, 1965). The safety behaviors that occurred in this sample of programs were rarely "tested." Because most behaviors were performed as precautions, rather than in response to immediate danger, few of those behaviors were followed by either positive or negative consequences. Thus, the utility of the modeled safety behaviors may not be apparent to young viewers. Another factor which could influence the benefits of safe television models is relevance for the observer (Bandura, 1986). In the present sample, roughly half of all safety behaviors were judged to be irrelevant for child viewers, due to improbable situations, adult occupational settings, and so on. Interestingly, the largest proportion of child-irrelevant safety behaviors occurred in programs intended for child audiences. This is probably due to the story lines of cartoons, which often featured fantastic characters, bizarre settings, and other improbable events that do not represent typical childhood experiences. Similarly, many safety models were not human, which may also reduce the perceived applicability of their behaviors for young viewers.

Most safety behaviors occurred in response to random or naturally occurring
danger. This pattern is consistent with at least one network’s recent policy, which encouraged producers of children’s programs to substitute natural catastrophe situations for interpersonal aggression (Stipp, Hill-Scott, & Dorr, 1987). Nevertheless, many safety behaviors observed in this study were responses to hostile threat, and most of these occurred in child-oriented programs, which have been found repeatedly to contain the most violence of any type of television programming (Signorielli, 1990).

Another unexpected finding was the prevalence of safety behaviors in commercial advertisements. One interpretation of this is that advertisers may have more liability concerns than producers of fictional programs. In entertainment programs, unsafe behaviors can be presented and claimed to be artistic, dramatic expressions with no persuasive intent. Commercial advertisements, on the other hand, are clearly persuasive, and advertisers may be necessarily vigilant for any possible construal that behaviors in their commercials, whether related to the central product message or not, should be imitated.

The present findings are limited to simple description of potential influences of television on children’s behavior, although TV-modeling effects have been documented previously for behaviors relevant to safety and injury (e.g., Potts et al., 1994; Wolf, 1973). Also, the present sample reflects only one season of TV fare; thus, seasonal or historical trends are unknown. However, content studies that have focused on interpersonal violence on TV have found strikingly stable levels over two decades (e.g., Gerbner et al., 1980). Content such as violence or dangerous risk-taking, if perceived by the television industry to successfully attract audiences, is likely to remain as popular fare. It should also be acknowledged that the sample does not reflect nonfictional portrayals of injury-relevant behavior, such as that found in newscasts, documentaries, and the like. Future research efforts should include experimental investigations of the impact of safety models on children’s injury-relevant behaviors. Also needed are studies of the prevalence of non-TV sources of safety information, such as the frequency of safety instruction and modeling by parents (e.g., Garling & Garling, 1995), teachers, or peers, for comparison with television safety messages.

These findings have implications for pediatric psychologists, safety educators, and other child development specialists. At a level of health education policy, safety curricula could incorporate information about media depictions of safety and injury, presumably as a contrast to desirable real-life safety practices. Health educators should be aware of the large number of hours that children are exposed to unsafe television models, compared with the small amount of time spent in safety education classes. A framework for this aspect of safety education can be found in media literacy curricula (e.g., Brown, 1986), which are designed to educate children about the fictitious and fabricated nature of entertainment television with the goal of tempering potential effects of undesirable TV models on children’s behavior. Parental coviewing and discussion about TV programs is
also part of media literacy training. The present findings suggest that child-
oriented programs present many opportunities for parent–child discussion of
safety issues. Clinicians should be also aware of safety- and injury-relevant
messages transmitted by television to children, with special attention to child
populations already at risk for injury. For example, children from lower socio-
economic groups have higher rates of injury than middle socioeconomic status
children (e.g., Matheny, 1988), and also are known to watch more hours of
television than middle-class children (Greenberg, 1986), thus creating additive
risk factors for injurious behaviors.

In summary, this study, along with results of previous content analyses of
injury-relevant behaviors (Atkin, 1989; Potts & Henderson, 1991), suggests that
frequency and utility of modeled safe behaviors do not keep pace with modeling
of risky and injurious behaviors by television characters. Endangerment of pro-
tagonsists is a common dramatic device for keeping the interest of audiences
(Zillmann, 1980). When those protagonists take risks, disregard safety concerns,
yet consistently overcome all foes and obstacles, entertainment potential is
heightened, while observational learning of safety behavior is diminished.

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