

When the Television Is Always On

Heavy Television Exposure and Young Children's Development

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In American homes, the television is on approximately 6 hours a day on average. Yet little is known about the impact of growing up in the near constant presence of television. This study examines the prevalence and developmental impact of "heavy-television" households on very young children aged 0 to 6 drawn from a nationally representative sample (N = 756). Thirty-five percent of the children lived in a home where the television is on "always" or "most of the time," even if no one is watching. Regardless of their age, children from heavy-television households watched more television and read less than other children. Furthermore, children exposed to constant television were less likely to be able to read than other children.

Keywords: *young children; media use; heavy television use; household television; reading skills*

Television is very much a part of the fabric of children's everyday life. In an average American home, the television is on about 6 hours a day (Anderson & Evans, 2001). Evidence suggests that for most Americans, television use is very much a default activity, filling in the majority of free time for both children and adults. Children in particular spend large percentages of their time with televi-

sion, more than in any other single activity except sleeping (Huston & Wright, 1997).

The vast majority of existing research has been conducted on children of school age or older. Moreover, much of the research on television use focuses on the time that children spend actually watching television. Less attention has been paid to the phenomenon whereby the television is on in the background, with attention to it waxing and waning as content changes. Because of this, we know very little about the impact of this “background television” on children’s development and less about its impact on the development of very young children. Yet the question of the impact of background television on children’s development may be an especially important one for infants, toddlers, and preschoolers. It is at this stage of life that much of the groundwork for learning in later developmental stages is set. Basic neurological skills on which later learning depends—such as the ability to pay attention and the ability to discern central from noncentral information—are developed at this stage.

Although a number of researchers have suggested that background television interferes with concurrent cognitive processing, including reading comprehension and memory (Anderson & Evans, 2001), research on these relations has been conducted most often with adolescents and/or young adults (see, e.g., Armstrong & Chung, 2000; Armstrong & Greenberg, 1990; Armstrong & Sopory, 1997; Pool, Van Der Voort, Beentjes, & Koolstra, 2000).

This article presents analyses from one of the first studies undertaken to assess the impact of heavy television exposure on very young children. Our purposes in this article are threefold: (a) to assess the prevalence in the American population of heavy television exposure among infants, toddlers, and preschoolers; (b) to examine the demographic and family variables that are related to whether children live in heavy-television households; and (c) to examine differences in time spent in various activities and in developmental outcomes (such as reading) between children who live in such households and those who do not.

METHOD

PROCEDURES AND SAMPLE

Participants were 1,065 parents of children aged 6 months to 6 years old who were selected by random-digit telephone dialing. The data were collected

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through telephone interviews by Princeton Data Source from April 11 to June 9, 2003. Interviewers made up to 10 attempts to contact each sampled telephone number; the response rate was 40%. Calls were staggered over times of day and days of the week. For each household that was eligible, interviewers asked to speak with the parent who spent the most time with the target child. If neither parent spent more time with the child, one was randomly chosen for the interview (for more information about the sample and descriptive findings, see Kaiser Family Foundation, 2003).

The sample used for the present analyses comprised 756 respondents who had complete information on all variables of interest. Considering that children's cognitive abilities and free time structures differ with age, heavy television exposure may have different effects among older children than among younger ones. Therefore, for the analyses reported here, children were separated into three age groups—ages 0 to 2 ($n = 288$), ages 3 to 4 ($n = 249$), and ages 5 to 6 ($n = 219$).

MEASURES

Table 1 provides the means and standard deviations for the family and child characteristics, measures of children's print and electronic media use, measures of parental attitudes toward media, and measures of children's access to television for each age group. Although the values on this table are weighted to represent national estimates, the sample sizes reported represent the actual, unweighted number of participants included in the analyses.

Heavy-television households. Parents indicated the extent of background television in their home by answering the following question: "When someone is at home in your household, how often is the TV on, even if no one is actually watching it?" Possible responses were never, hardly ever, less than half the time, about half the time, most of the time, and always (coded 1 to 6, respectively). Children were considered as living in a heavy-television household if their parent reported that the television is on always or most of the time. For each of the age groups, the following percentages lived in heavy-television households: ages 0 to 2, 38% (109); ages 3 to 4, 37% (92); ages 5 to 6, 27% (60).

Time spent with media and in other activities. Parents were asked to report on the amount of time their child spent with media and in other activities the previous day. Response categories were 5 minutes, 15 minutes, 30 minutes, 45 minutes, 1 hour, and 1½ hours and up in half-hour increments. To determine if children from heavy-television households differed from other children on the amount of time they spent on various activities, the following time-use variables were examined: reading or being read to, television viewing, video and DVD viewing, listening to music, playing computer games, using the computer for nongame activities, playing console video games (e.g., Playstation or

TABLE 1: Means and Standard Deviations for All Measures by Age Group

| Measure | Ages 0 to 2 (n = 288) | | Ages 3 to 4 (n = 249) | | Ages 5 to 6 (n = 219) | |
|--|--------------------------|--------|--------------------------|--------|--------------------------|--------|
| | M | SD | M | SD | M | SD |
| Minutes television | 56.23 | 71.46 | 76.67 | 73.31 | 65.07 | 62.62 |
| Minutes reading | 37.73 | 48.15 | 40.33 | 43.08 | 45.16 | 49.12 |
| Minutes video-DVD | 46.33 | 70.90 | 40.01 | 49.34 | 36.15 | 54.01 |
| Minutes console video games | 1.02 | 10.87 | 5.26 | 22.38 | 7.70 | 22.33 |
| Minutes handheld video games | .18 | 2.75 | 1.56 | 12.93 | 2.30 | 12.13 |
| Minutes computer games | 1.33 | 7.17 | 11.14 | 39.47 | 12.09 | 27.10 |
| Minutes other computer use | .56 | 6.19 | 1.88 | 8.10 | 7.39 | 23.96 |
| Minutes music | 69.02 | 89.76 | 58.80 | 72.97 | 42.66 | 60.97 |
| Minutes toys inside | 174.68 | 125.38 | 148.67 | 117.90 | 83.82 | 73.41 |
| Minutes play outside | 101.67 | 104.13 | 139.41 | 104.60 | 135.75 | 112.88 |
| Heavy-TV household ^a | .39 | .49 | .39 | .49 | .29 | .45 |
| Only child ^a | .40 | .49 | .30 | .46 | .23 | .42 |
| Child's gender ^b | .47 | .50 | .51 | .50 | .49 | .50 |
| Household income | 3.83 | 1.77 | 4.32 | 1.57 | 4.32 | 1.65 |
| Child's ethnicity ^c | .36 | .48 | .36 | .48 | .32 | .47 |
| Family structure ^d | .27 | .45 | .23 | .42 | .20 | .40 |
| Parental education level | 4.34 | 1.66 | 4.5 | 1.58 | 4.50 | 1.61 |
| Books most important for intellectual development ^a | .72 | .45 | .68 | .47 | .70 | .46 |
| TV helps learning ^a | .40 | .49 | .52 | .50 | .48 | .50 |
| TV hurts learning ^a | .33 | .47 | .24 | .43 | .32 | .47 |
| Watched TV before age 1 ^a | | | .30 | .46 | .20 | .40 |
| Can child read ^a | | | .14 | .34 | .67 | .47 |
| TV in child's bedroom ^a | .26 | .44 | .36 | .48 | .48 | .50 |
| Number of TVs in the house | 2.49 | 1.15 | 2.73 | 1.19 | 2.8 | 1.25 |
| Likelihood of using TV as a babysitter ^e | .41 | .49 | .57 | .50 | .45 | .50 |
| Subscription to parent-oriented magazines ^a | .52 | .50 | .43 | .50 | .33 | .47 |
| Educational TV very important for intellectual development ^a | .57 | .50 | .54 | .50 | .57 | .50 |
| Hours per week child spent outside the home (e.g., daycare, school) | 8.93 | 15.29 | 15.21 | 16.43 | 19.95 | 16.26 |

a. 0 = no, 1 = yes.

b. 0 = boy, 1 = girl.

c. 0 = non-Hispanic White background, 1 = non-White background.

d. 0 = one parent, 1 = two parent.

e. 0 = not too or not at all likely, 1 = very or somewhat likely.

Gamecube), playing handheld video games (e.g., GameBoy), playing outdoors, and playing with toys indoors.

Family demographics. Respondents reported on their household income, measured on a scale ranging from 1 = *less than U.S.\$10,000* to 7 = *U.S.\$100,000 or more*. Parent education was measured using a 7-point scale ranging from 1 =

none, or Grades 1 to 8 to 7 = postgraduate training or professional schooling after college. Information about the parent's ethnicity was collected and was dummy coded such that 1 denoted minority status (i.e., non-White, including Hispanic) and 0 denoted nonminority status (i.e., non-Hispanic White). Respondents also indicated whether they were married, living as married, divorced, separated, widowed, or had never been married. Responses were dummy coded with two-parent families (i.e., married or living as married) as the reference group; this was used as an indicator of family structure.

Child demographics. Child gender and whether the child was an only child were dummy coded with boys and children with siblings as reference groups, respectively. To control for the possibility that children's time use was a function of the amount of time they spent at home, the hours that children spent outside the home in child care, day care, or preschool were included as a covariate.

Parental attitudes toward television. Parental attitudes toward television comprised four measures: positive attitude toward television, negative attitude toward television, positive attitude toward educational television, and the use of television as a babysitter.

To measure parents' general attitudes toward television, they were asked the following: "In general, do you think watching TV mostly helps or mostly hurts children's learning—or doesn't have much effect either way?" Responses were dummy coded to create three variables: positive attitude (1 = television helps learning, 0 = television does not help learning), negative attitude (1 = television hurts learning, 0 = television does not hurt learning), and neutral attitude (1 = television has no effect on learning, 0 = television helps or hurts learning). Parents reporting that television has no effect on learning were the reference group for all analyses.

Parents were further asked how important they thought watching educational television shows (e.g., *Sesame Street*) is to children's intellectual development. Responses were recorded on a 4-point scale ranging from 1 = *not at all important* to 4 = *very important*. This item was dummy coded to compare parents who believed educational television is very important with those who held any other view (reference group).

To ascertain how parents used television in the home, they indicated how likely they were to sit their child down with a video or television show if they had something important to do. Responses ranged from 1 = *not at all likely* to 4 = *very likely*. Responses to this question were also dummy coded (0 = not too or not at all likely, 1 = very or somewhat likely).

Parental attitudes toward print media. The degree to which parents valued reading was assessed by whether they thought reading books (out of other possible options such as using a computer, watching television, doing puzzles, using educational toys, etc.) was the most important to children's intellectual

development (1 = reading books most important, 0 = reading books not most important). The family's print use was ascertained by a dummy code indicating whether it subscribed to any non-child oriented magazines (i.e., news or parenting magazines).

Availability of television. The availability of television in the home was measured with three variables: (a) the number of televisions in the home, (b) whether the child had a television in his or her bedroom (1 = television in the bedroom, 0 = no television in the bedroom), and (c) whether the child watched television before he or she was a 1-year-old (1 = watched television before age 1 year, 0 = did not watch television before age 1 year).

ANALYSIS PLAN

Recall that the goals of this article are (a) to describe the prevalence of heavy television exposure among very young children in the American population, (b) to examine the demographic and family variables that are related to a child's living in a heavy-television household, and (c) to assess the differences in time spent in various activities and developmental outcomes between children who live in such households and those who do not.

Descriptive analyses are used to ascertain the prevalence of heavy television-household use among young children in America. To ascertain the variables that are related to children's membership in heavy-television households, we conducted logistic regressions using three blocks of predictors: child and family demographic variables (child gender, being an only child, time spent outside the home, parent education, household income, parent ethnicity, and family structure), parental attitudes toward television and print media (positive attitude toward television, negative attitude toward television, importance of educational television, using television as a babysitter, books as being most important for intellectual development, and magazine subscriptions), and availability of television in the home (number of television sets, television in the child's bedroom, and watching television before age 1 year). Predictors were entered in blocks in the logistic regression model. The explanatory power of each additional block was evaluated by comparing the difference in χ^2 with the previous block. If the difference in χ^2 was not significant, the block with fewer variables was deemed to provide the most accurate and parsimonious estimates of the relations tested.

MANCOVAs were performed to analyze the relations between being in a heavy-television household and time spent on the following activities: reading or being read to, television viewing, video and DVD viewing, listening to music, playing computer games, using the computer for nongame activities, console video game play, handheld video game play, playing outdoors, and playing with toys indoors. Variables known to be related to children's time use—parent

education, household income, parent ethnicity, being an only child, child gender, family structure, and time outside the home—were used as covariates.

A logistic regression was performed to determine if children's ability to read and their imitation of behavior viewed on television were related to their membership in heavy-television households. The same covariates included in the MANCOVA models were used for this analysis.

RESULTS

PREVALENCE OF HEAVY TELEVISION EXPOSURE

Parental responses to questions of their children's media exposure were weighted to create national estimates. The following percentages of parents made the corresponding response to the question, "How often is the TV on, even if no one is actually watching it?": never, 4.5%; hardly ever, 12.1%; less than half the time, 17.6%; about half the time, 30%; most of the time, 23.2%; and always, 12.6%. Therefore, by our definition, 35.8% of the children qualified as living in heavy-television households (always and most of the time responses combined). The percentages of children in heavy-television households for each age group were as follows: 0- to 2-year-olds, 39%; 3- to 4-year-olds, 39%; and 5- to 6-year-olds, 29%.

VARIABLES RELATED TO CHILDREN'S HEAVY TELEVISION-HOUSEHOLD MEMBERSHIP

Hierarchical logistic regressions were used to determine which family and child characteristics are related to children's membership in heavy-television households. The regressions, performed separately for each age group, suggest that the predictors of heavy television-household membership differ by the age of the target child.

Age 6 months to 2 years old. As shown in Table 2, the addition of the third block of variables did not significantly improve the model for the youngest age group. Therefore, the second model will be interpreted. Results from this model indicate that parental attitudes and behaviors are the best determinants of membership in heavy-television households for very young children. Children with parents who view educational television as a very important contributor to healthy development are more than twice as likely as other children to be from a heavy-television household. Children whose parents use television as a baby-sitter and children with no siblings also have greater odds of being in heavy-television households.

TABLE 2: Odds Ratios From Logistic Regressions Predicting Membership in Heavy-Television Households Among 0- to 2-Year-Olds

| <i>Block 1</i> | <i>Model 1</i> | <i>Model 2</i> | <i>Model 3</i> |
|--|----------------|----------------|----------------|
| Time spent outside the home | 1.00 | 1.00 | 1.00 |
| Is child an only child? | .55** | .61* | .66 |
| Household income | .95 | 1.01 | 1.00 |
| Child's gender | 1.00 | 1.00 | .96 |
| Child's ethnicity | 1.06 | .92 | .81 |
| Family structure | 1.12 | 1.11 | 1.08 |
| Parent education level | .88 | .88 | .89 |
| $\chi^2(7)$ | 10.54 | | |
| <i>Block 2</i> | | <i>Model 2</i> | <i>Model 3</i> |
| Household subscription to nonchild magazines | | 1.01 | .98 |
| Books most important for intellectual development | | 1.25 | 1.28 |
| TV helps children's learning | | .77 | .77 |
| TV hurts children's learning | | .56 | .56 |
| Use television to occupy child when parent is busy | | 1.86** | 1.82** |
| Educational TV very important for intellectual development | | 2.10** | 1.96** |
| $\chi^2(13)$ | | 25.73** | |
| $\Delta\chi^2(6)$ | | 15.19** | |
| <i>Block 3</i> | | | <i>Model 3</i> |
| Television in the bedroom | | | 1.65 |
| Number of TVs in the house | | | 1.14 |
| $\chi^2(15)$ | | | 28.87** |
| $\Delta\chi^2(2)$ | | | 3.14 |

* $p < .10$. ** $p < .05$.

Age 3 to 4 years old. Variables from each of the three blocks of the model were significantly related to 3- to 4-year-olds' membership in heavy-television households (see Table 3). Preschoolers were more likely to be from heavy-television households if they lived in a single-parent home and had parents who used television as a babysitter. Also, the more televisions that were in the house, the higher the likelihood it was a heavy-television household. Children with parents who thought that television hurt development were less likely to be in a heavy-television household.

Age 5 to 6 years old. The strongest predictors of membership in heavy-television households for the oldest group in the sample were measures of television availability in the home (Block 3). Both the number of televisions and the presence of a television in the child's bedroom increase the odds of a child living

TABLE 3: Odds Ratios From Logistic Regressions Predicting Membership in Heavy-Television Households Among 3- to 4-Year-Olds

| <i>Block 1</i> | <i>Model 1</i> | <i>Model 2</i> | <i>Model 3</i> |
|--|----------------|----------------|----------------|
| Time spent outside the home (childcare, school, etc.) | 1.00 | .99 | .99 |
| Is child an only child? | .72 | .82 | .81 |
| Household income | 1.08 | 1.07 | 1.01 |
| Child's gender | 1.00 | .85 | .83 |
| Child's ethnicity | .91 | .80 | .76 |
| Family structure | 3.02*** | 2.82** | 2.75** |
| Parent education level | .83* | .85 | .85 |
| $\chi^2(7)$ | 12.71* | | |
| <i>Block 2</i> | | | |
| Household subscription to nonchild magazines | | .70 | .68 |
| Books most important for intellectual development | | .77 | .87 |
| TV helps children's learning | | .86 | .80 |
| TV hurts children's learning | | .42** | .45* |
| Use television to occupy child when parent is busy | | 1.94** | 1.99** |
| Educational TV very important for intellectual development | | 1.05 | .97 |
| $\chi^2(13)$ | | 22.24** | |
| $\Delta\chi^2(6)$ | | 9.53 | |
| <i>Block 3</i> | | | |
| Television in the bedroom | | | 1.27 |
| Number of TVs in the house | | | 1.35** |
| Watched TV before age 1 year | | | 1.20 |
| $\chi^2(16)$ | | | 29.83** |
| $\Delta\chi^2(3)$ | | | 7.59* |

* $p < .10$. ** $p < .05$. *** $p < .01$.

in a home with constant television. The family's income was also a significant predictor—less-wealthy families were more likely to be heavy-television households (see Table 4).

HEAVY TELEVISION EXPOSURE AND CHILDREN'S ACTIVITIES

Electronic media use. The results from the MANCOVAs indicate that children who live in heavy-television households use their time very differently than other children (see Table 5). Most striking is that children who live with the television almost constantly on spend more time using electronic media than other

TABLE 4: Odds Ratios From Logistic Regressions Predicting Membership in Heavy-Television Households Among 5- to 6-Year-Olds

| <i>Block 1</i> | <i>Model 1</i> | <i>Model 2</i> | <i>Model 3</i> |
|--|----------------|----------------|----------------|
| Time spent outside the home | 1.00 | 1.01 | 1.01 |
| Is child an only child? | 1.09 | .94 | .82 |
| Household income | .89 | .91 | .74** |
| Child's gender | .99 | .94 | .99 |
| Child's ethnicity | 1.43 | 1.37 | .85 |
| Family structure | .81 | .90 | .79 |
| Parent education level | .92 | .93 | 1.05 |
| $\chi^2(7)$ | 5.02 | | |
| <i>Block 2</i> | | | |
| Household subscription to nonchild magazines | | .51* | .63 |
| Books most important for intellectual development | | 1.30 | 1.19 |
| TV helps children's learning | | 1.64 | 1.60 |
| TV hurts children's learning | | .75 | .99 |
| Use television to occupy child when parent is busy | | 1.56 | 1.56 |
| Educational TV very important for intellectual development | | 1.69 | 1.39 |
| $\chi^2(13)$ | | 19.86* | |
| $\Delta\chi^2(6)$ | | 14.84** | |
| <i>Block 3</i> | | | |
| Television in the bedroom | | | 2.60** |
| Number of TVs in the house | | | 1.68*** |
| Watched TV before age 1 year | | | 1.58 |
| $\chi^2(16)$ | | | 42.51*** |
| $\Delta\chi^2(3)$ | | | 22.65*** |

* $p < .10$. ** $p < .05$. *** $p < .01$.

children. Although this result is consistent across age groups, the specific types of media in which use differences exist vary across the groups. Regardless of their age, children from heavy-television households watched more television and videos (or DVDs) than other children.

For the youngest children in the sample (children from 6 months to 2 years old), those in heavy-television households spent more time than other children using computers for nongame purposes. Children in the oldest group (5- and 6-year olds) who experience almost constant television exposure spent more time listening to music and playing handheld video games than other children.

There was no evidence that living in a heavy-television household is related to the amount of time children of any age spent playing outside or playing inside with toys.

TABLE 5: Mean Differences in Activities by Heavy-Television Household Membership

| <i>Activities by Age Group</i> | <i>Non-Heavy TV Household</i> | <i>Heavy-TV Household</i> | <i>F</i> |
|---|-----------------------------------|-------------------------------|-----------------------|
| 0- to 2-year-olds | (<i>n</i> = 179) | (<i>n</i> = 109) | (<i>df</i> = 1, 295) |
| Minutes reading | 36.51 | 38.93 | .20**** |
| Minutes TV viewing | 41.63 | 77.24 | 18.12**** |
| Minutes playing outside | 103.89 | 99.26 | .13 |
| Minutes listening to music | 68.78 | 73.62 | .19 |
| Minutes using other computer | .08 | 1.40 | 3.15* |
| Minutes using computer game | 1.35 | 1.43 | .01 |
| Minutes using handheld video game | .02 | .41 | 1.57 |
| Minutes using console video game | .18 | 2.20 | 2.36 |
| Minutes watching video-DVD | 37.48 | 58.46 | 6.13** |
| Minutes playing toys inside | 168.26 | 181.80 | .81 |
| Pillai's trace = .08, <i>F</i> (10, 286) = 2.50**** | | | |
| 3- to 4-year-olds | (<i>n</i> = 157) | (<i>n</i> = 92) | (<i>df</i> = 1, 248) |
| Minutes reading | 42.94 | 34.44 | 2.77* |
| Minutes TV viewing | 64.45 | 90.09 | 8.58**** |
| Minutes playing outside | 132.36 | 154.11 | 2.55 |
| Minutes listening to music | 63.08 | 48.48 | 2.40 |
| Minutes using other computer | 2.05 | 1.47 | .30 |
| Minutes using computer game | 7.86 | 14.99 | 2.41 |
| Minutes using handheld video game | 1.27 | 1.93 | .16 |
| Minutes using console video game | 3.75 | 6.05 | .76 |
| Minutes watching video-DVD | 35.07 | 50.10 | 5.26** |
| Minutes playing toys inside | 140.11 | 159.82 | 1.72 |
| Pillai's trace = .10, <i>F</i> (10, 239) = 2.59**** | | | |
| 5- to 6-year-olds | (<i>n</i> = 159) | (<i>n</i> = 60) | (<i>df</i> = 1, 214) |
| Minutes reading | 49.04 | 35.42 | 3.53* |
| Minutes TV viewing | 52.91 | 94.15 | 20.51**** |
| Minutes playing outside | 134.99 | 141.42 | .15 |
| Minutes listening to music | 33.57 | 62.31 | 11.57**** |
| Minutes using other computer | 6.79 | 8.52 | .22 |
| Minutes using computer game | 11.74 | 14.56 | .44 |
| Minutes using handheld video game | 1.55 | 5.08 | 3.20* |
| Minutes using console video game | 7.70 | 7.33 | .01 |
| Minutes watching video-DVD | 29.73 | 51.13 | 7.04**** |
| Minutes playing toys inside | 82.35 | 91.70 | .69 |
| Pillai's trace = .17, <i>F</i> (10, 205) = 4.33**** | | | |

NOTE: Means reported have been adjusted for the following covariates: time outside the home, child gender, household income, child ethnicity, family structure, parent education, and only-child status. **p* < .10. ***p* < .05. ****p* < .01. *****p* < .001.

HEAVY TELEVISION EXPOSURE AND CHILDREN'S DEVELOPMENTAL OUTCOMES

Imitation of behavior. Regardless of age, children living in heavy-television households were no more or less likely to imitate behaviors they saw on

television (either positive or negative behaviors) than children who were not living in such households.

Reading and being read to. Evidence was found to support the hypothesis that children who are constantly exposed to television spend less time reading or being read to. Support for this hypothesis was found for the two oldest age groups (3- to 4-year-olds and 5- to 6-year-olds, see Table 5). Although these results reach only a marginal level of significance, the effect appears large enough to be important. Preschoolers (3- to 4-year-olds) not in heavy-television households spent about 25% more time reading than those constantly exposed to television (42.94 minutes vs. 34.44). The effect is larger for 5- to 6-year-olds; children who were not in heavy-television households spent 38% more time reading than the other children (49.04 minutes vs. 35.42).

Children's reading ability. Children in heavy-television households were also found to be less likely to be able to read. This was true even while controlling for parental education level. A logistic regression was performed for children in the two oldest age groups predicting membership in heavy-television households using their ability to read and their family and child characteristics: 3- to 4-year-olds, $\chi^2(8) = 16.27, p < .05$; 5- to 6-year-olds, $\chi^2(8) = 14.47, p < .10$. Among 3- to 4-year-olds, nonreaders have 2.38 greater odds than readers to be from a home where the television is almost always or always on (odds ratio = .42, $p < .05$). As was found for reading time, the effect is slightly larger for 5- to 6-year-olds. Nonreaders in this group have 2.86 greater odds than readers to be from heavy-television households (odds ratio = .35, $p < .01$).

DISCUSSION

The American Academy of Pediatrics (1999) has recommended that children younger than the age of 2 not be exposed to any screen media and that parents limit older children's television use to no more than 2 hours a day. Clearly, many American parents are not following this advice. We found that 39% of children between the ages of 0 and 4 live in households where the television is on always or most of the time, even if no one is watching. This was true for 29% of 5- to 6-year-olds as well. It is worth noting that major demographic characteristics, including family income, parental education, family structure, and ethnicity were not systematically related to heavy television-household status. Perhaps television has become such a ubiquitous presence in American households that having television on in the background applies to families across the board, regardless of sociodemographic factors.

Although the specific household characteristics, parental attitudes, and media features of the home that were related to heavy television-household status differed by the age of the target child, parental attitudes were a common

determinant for each age group. For the youngest children, parental attitudes toward television were the primary predictors. At this age (6 months to 2 years old), children have very little agency with regard to the presence of media in their home, and it is reasonable, therefore, that parents who have positive views of television as an appropriate activity for their children allow its almost constant presence. For parents of toddlers, attitude toward media was also related to heavy television–household status. If parents believed television hurts their child’s learning, the household was less likely to be a heavy-television household. Among older children, access to many televisions in the home and a television in their own room was related to heavy-television status. This access may also be seen as a measure of parental media acceptance. Parents who provide children with numerous access points to television also allow for constant use. Most likely because older children are more likely to contribute to their own viewing, simply having more viewing options is related to more exposure to background television for them.

Given that background television is very prevalent and that it is most likely to occur in homes with parents who have positive attitudes toward media, the question becomes, What are the consequences of living in such a household? The correlational nature of these data may not allow for causal claims, but the relationships found here represent a first step toward exploring possible developmental consequences of constant television exposure.

That said, the developmental implications of our findings can be separated into two areas—those concerned with electronic media use and those concerned with other activities often considered developmentally important (e.g., reading and playing outside). It is far from surprising that children living in heavy-television households watched more television than other children. However, they also spend more time playing video games and listening to music. Thus, their television viewing does not seem to displace these other, similar activities. The picture of the heavy-television households emerging from these results is one of parents who have positive attitudes toward media that lead to all types of electronic media use and exposure among their children. This was true even controlling for a host of other relevant factors, including family income, parental education, and family structure (among others). An important goal for future research will be to address how constant television exposure is related to developmentally important activities and skills.

In making the recommendation described above, the American Academy of Pediatrics (1999) was mainly concerned about direct exposure to television, that is, television that children were actually watching. However, our results indicate that there may be reasons to be concerned with background television as well. Children from heavy-television households spent between 25% and 38% (3- to 4-year-olds and 5- to 6-year-olds, respectively) less time reading than other children. Moreover, children who live with such a high level of background television are more likely to be unable to read (2.38 greater odds for 3- to 4-year-olds and 2.86 greater odds for 5- to 6-year-olds).

One of the reasons why the American Academy of Pediatrics (1999) recommended these guidelines is that it reasoned that social interaction was required for proper brain development, and it assumed that time spent watching television would take time away from time spent with parents. Given the Academy's concern, it is interesting that children of parents who reported that they are likely to use television as a babysitter had greater odds of being in a heavy-television household. On the other hand, children of parents who viewed educational television as an important contributor to healthy development were also twice as likely to be in a heavy-television household. The positive impact of educational children's programming on children's academic skills and development has been well documented (see, e.g., Anderson, Huston, Schmitt, Linebarger, & Wright, 2001; Bickham, Wright, & Huston, 2001; Fisch & Truglio, 2001; Huston & Wright, 1997).

Despite the veracity of this parental perception, the question here is whether the content of the television programming appearing in heavy-television households was indeed educational. Our results indicate that children from heavy-television households do indeed watch more television, probably as a simple consequence of availability. However, given the relatively small proportion of available programming with good educational content, it seems doubtful that when the television is always on, most of what is on could be counted as educational. Moreover, our results indicate that there may be developmental outcomes related to heavy-television-household membership regarding reading. Children between the ages of 3 and 6 in heavy-television households spent less time reading or being read to and were less likely to be able to read than children in non-heavy television households, even when controlling for factors such as parent education, family income, or whether the child lives in a single- or two-parent home. Thus, it may well be that these parents have an overly positive view of the possible positive impact of television. The plethora of research showing a positive relationship between educational television and educational outcomes specifically indicates that this relationship is predicated on high quality educational content. As previously stated, given the relative scarcity of programming with such content, it seems doubtful that high-quality content will be dominant if the television is on always or most of the time.

Several important caveats should be considered when evaluating these findings. To begin with, the measures regarding time spent reading are relatively crude and are based on a single day. In addition, there was no independent verification of the parents' assessment of whether their child can read and no differentiation between levels of reading skill. Again, it is also important to recognize that the nature of these data, collected at one point in time, do not allow us to discern whether the relationships we found were causal and if so, the direction of causality. Although we did control for sociodemographic factors that might affect children's reading, this study did not account for other factors known to influence reading outcomes, such as family stressors or quantity and quality of parent-child interactions. It may be that households where the television is a

more or less constant presence are also households where reading is less valued, less encouraged, less a part of daily family life, or all three. It could also be that electronic media use is a highly valued and central aspect of these households. Hence, children from these households read less and use electronic media more because this is part of their wider family context. On the other hand, it could be that the constant presence of television in a young child's life interferes with his or her ability to develop skills necessary for reading. At the very least, it seems reasonable to presume that having television on in the background is likely to distract children from other indoor activities that require concentration—namely reading.

It is also important to note that we did not find any evidence that whether or not a child is in a heavy-television household made any difference in the amount of time they spent playing outdoors or playing inside with toys. One of the charges leveled at television is that it has produced a generation of “couch potatoes” whose only interest is staying indoors to watch “the boob tube.” If this were true of any group, it makes sense that it would be true among children for whom television is an almost constant presence. However, all 0- to 2-year-olds spent roughly 100 minutes on a typical day playing outside. Among 3- to 4-year-olds and 5- to 6-year-olds, although not a significant difference, children from heavy-television households actually spent slightly more time playing outdoors than children from non-heavy television households. Hence, it seems that concerns related to detrimental effects on playing outdoors or playing with other kinds of toys are unwarranted—at least with respect to background television.

These findings highlight the notion that the relations between background television and young children's developmental outcomes are complex. In some cases—such as with reading skills—there appear to be warranted concerns. Determining the direction of causality for the negative relationship between background television and young children's reading skills, as well as identifying the mechanisms underlying this relationship, will be important areas of future empirical research. In other cases—such as with the time children spend playing outdoors—the concerns appear to be unwarranted.

It is clear that television is a major socializing force in children's lives. We believe it behooves researchers in this area to understand and distinguish the ways in which television (both as a primary activity and a background presence) has negative influences, positive influences, or little influence on young children's development.

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