Primary Care Interventions to Reduce Television Viewing in African-American Children

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Background: Data are lacking on primary care interventions to reduce children's television viewing. Low-income African-American children watch greater amounts of television than their peers.

Design/Methods: A randomized controlled pilot and feasibility trial was conducted. Twenty-eight families with 7- to 12-year-old African-American children receiving primary care at an urban community clinic serving a low-income population were randomized to receive counseling alone or counseling plus a behavioral intervention that included an electronic television time manager. The main outcome was hours of children's television, videotape, and video game use. Parents/guardians and children completed baseline and 4-week follow-up self-report surveys. Additional outcomes included overall household television use, time spent in organized physical activity and playing outside, and meals eaten by the child while watching television.

Results: Both intervention groups reported similar decreases in children's television, videotape, and video game use (mean changes of −13.7, SD=26.1 and −14.1, SD=16.8 hours per week). The behavioral intervention group reported significantly greater increases in organized physical activity (changes of +2.5, SD=5.9 and −3.6, SD=4.7 hours per week; $p=0.004$) and nearly significant greater increases in playing outside (changes of 1.0, SD=5.9 and −4.7, SD=9.4 hours per week; $p<0.06$). Changes in overall household television use and meals eaten while watching television also appeared to favor the behavioral intervention, with small to medium effect sizes, but differences were not statistically significant.

Conclusions: This small pilot and feasibility study evaluated two promising primary care–based interventions to reduce television, videotape, and video game use among low-income African-American children. The effects on physical activity suggest that the behavioral intervention may be more effective.

Medical Subject Headings (MeSH): blacks, child, counseling, exercise, food habits, primary health care, television, video games (Am J Prev Med 2002;22(2):106–109)

Television viewing is thought to increase obesity by displacing physical activity and/or increasing calorie intake.[1] The primary care setting offers an attractive venue and opportunity for promoting reduced television viewing. In fact, the American Academy of Pediatrics has recently called for including counseling to reduce television viewing as a routine part of health supervision visits for children.[2] However, data are lacking on primary care interventions to reduce television viewing. In addition, previous studies have not been implemented in low-income African-American populations, where fewer resources and opportunities for safe alternative activities may be barriers to reducing television time. African-American children and low-income children are at greater risk of obesity[3] and watch greater amounts of television than their peers.[4] Therefore, we conducted a small-scale, randomized controlled pilot and feasibility trial in an urban neighborhood clinic serving a low-income African-American community to compare two potential primary care approaches: counseling alone and counseling plus a limited behavioral intervention including an electronic television time manager. We hypothesized that the behavioral intervention, aimed at involving both

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the parent and the child, would produce greater reductions in children's viewing time, greater increases in physical activity, and greater decreases in meals eaten in front of a television.

Methods

The study was conducted at an urban community clinic serving a low-income population in Atlanta, Georgia. All 7- to12-year-old children who presented to one of three family physicians for health supervision between June 20 and August 18, 2000, were eligible to participate. After completing their medical visit, a medical student (BSF) invited families to participate in the study. Parents or guardians provided signed written informed consent, and children provided signed assent. After completing baseline assessments, each child was randomly assigned to receive the counseling plus the behavioral intervention or the counseling intervention alone, using opaque ordered envelopes to maintain blinded assignment. The study was approved by the Stanford University Panel on Human Subjects in Research.

Measures

Prior to randomization, parents/guardians and children completed self-report surveys. A follow-up visit was scheduled 4 weeks later to complete post-test surveys. If a follow-up visit was not successful, post-test interviews were completed by phone. Using established instruments,[1,5] parents/guardians and children collectively reported the child's typical weekday and Saturday television, videotape, and video game use as well as the amount of time spent in organized physical activity and playing outside (typical weekday estimates were multiplied by 5 and Saturday estimates were multiplied by 2 and then summed to produce weekly estimates[1]); the number of days in the past week that the child ate breakfast and dinner while watching television; and overall household television viewing.[6]

Interventions

All families received a brief (5 to 10 minutes) counseling intervention, following a prepared script. The counseling included discussion of potential problems associated with excessive media use and three brochures from the American Academy of Pediatrics.[7–9]

The behavioral intervention was based in social cognitive theory.[10] In addition to the standard counseling intervention, there was a 15- to 20-minute discussion about setting television budgets, and parents received a brochure titled *A Parent's Guide to Reducing Children's TV Viewing*, with instructions for three sequential steps: (1) Identify how much time your child currently spends watching television and videotapes and playing video games, (2) Choose a weekly media budget, and (3) Help your child stick to his/her budget. These families also received an electronic television time manager (TV Allowance, Miami, Florida) to help them budget. This device locks the power plug of the television to monitor and budget viewing time for each member of the household through the use of four-digit personal identification numbers. Because the device controls power to the television, it also controls videotape and video game use.[1]

Statistical Analysis

Baseline to post-test change scores were calculated for each participant (post minus baseline). Consistent with intention-to-treat principles, baseline values were carried forward for missing post-test data as a conservative imputation strategy. Wilcoxon rank-sum tests were used to test the statistical significance of group differences in change scores. To help assess the potential clinical, practical, and policy importance of these findings, and to inform future studies, we also calculated standardized effect sizes (Cohen's δ) as differences between the mean change scores for the two intervention groups divided by the pooled within-group standard deviation.[11] As a pilot study, there was limited power to detect statistically significant differences. For a total sample size of 28 and a two-tailed α of 0.05, we had 80% power to detect an effect size (δ) of $\geq$1.1 SD units.[12]

Results

Twelve (80.0%) of 15 families in the intervention group and all 13 (100%) families in the control group completed post-test surveys. In the intervention group, two participants had disconnected phones and could not be located, and one participant withdrew from the study. As seen in Table 1, the two groups were similar at baseline.

Changes from baseline to post-test are presented in Table 2. Both intervention groups reported decreases in the amount of time children spent watching television and videotapes, playing video games, and in total household television use. Compared to the counseling intervention group, the behavioral intervention group reported a statistically significant increase in organized physical activity and a nearly significant increase in playing outside. Decreases in overall family television use and meals eaten in front of a television also appeared to favor the behavioral intervention, but differences were not statistically significant. Results did not change when the analysis was repeated with analysis of covariance after adjusting for baseline values of each dependent variable.

Of the 12 behavioral intervention families at post-test, 10 reported ever using the electronic television time manager, 8 reported that it was still hooked up, and 5 said they used it for the full 4 weeks of the study. All 10 parents who used the TV time manager rated it as very helpful or helpful, and 9 rated it as very easy or easy to use. Reported media budgets for children ranged from 0 to 14 hours per week, most commonly 10 hours. The 10 families who used the TV time manager generally reported greater changes in outcome variables than the behavioral intervention group as a whole, except for hours of playing outside.

Discussion

We designed this small pilot and feasibility study as the first step in developing and evaluating practical and

Table 1. Baseline characteristics

Baseline variables	Behavioral intervention (n=15)	Counseling intervention (n=13)	p value[a]
Mean (SD) age in years	9.5 (1.4)	9.6 (1.7)	0.78
N (%) female	8 (53.3%)	7 (53.9%)	0.98
N (%) families with college graduate	3 (20.0%)	2 (15.4%)	0.97
Mean (SD) body mass index	21.9 (5.8)	21.4 (4.3)	0.78
N (%) body mass index ≥85th percentile for age and gender	5 (33.3%)	3 (23.1%)	0.63
Mean (SD) number of TVs in home	2.7 (1.0)	2.6 (0.7)	0.80
N (%) with TV in child's bedroom	12 (80.0%)	7 (53.9%)	0.14
Mean (SD) number of VCRs in home	1.1 (0.8)	1.3 (0.6)	0.28
N (%) with video game player hooked to a TV	11 (73.3%)	10 (76.9%)	0.83
N (%) with a portable video game player	6 (40%)	4 (30.8%)	0.61
Mean (SD) hours of children's weekly TV, videotape, and video game use	53.6 (36.1)	39.6 (23.9)	0.36
Overall household TV use (SD) (range 0–28)	21.5 (7.1)	20.1 (7.8)	0.65
Mean (SD) days breakfast with TV on	4.6 (3.1)	2.6 (2.6)	0.08
Mean (SD) days dinner with TV on	4.6 (2.6)	3.0 (3.2)	0.17
Mean (SD) weekly hours playing outside	11.8 (9.0)	15.9 (11.4)	0.29
Mean (SD) weekly hours of organized physical activity	4.4 (8.1)	7.8 (8.9)	0.27

[a]Baseline comparisons between groups tested with Wilcoxon rank–sum tests for scaled variables and χ^2 tests for categorical variables.
TV, television; VCR, video cassette recorder.

effective primary care–based methods for reducing television viewing among low-income African-American children. Both a simple counseling intervention and counseling plus a behavioral intervention that included an electronic television time manager were associated with self-reported decreases in television, videotape, and video game use. Compared to the counseling intervention, the behavioral intervention group reported significant increases in reported physical activity and nearly significant increases in playing outside, but no statistically significant differences in changes in child or household media use and meals eaten in front of a television—although all trended in the expected direction with small to medium effect sizes.[11]

The effects on physical activity and playing outside suggest that the behavioral intervention may be more effective. It is also possible that for this type of behavioral intervention to show markedly better outcomes than simple counseling and written materials, more intensive contact with patients/families or a longer follow-up period are necessary. Some of the null differences between the two intervention groups might also reflect the small sample size, measurement error in self-reports (particularly for media use estimates), biased loss to follow-up, or some combination of these.

The objectives of this small pilot project were achieved. We identified two promising and feasible primary care–based interventions to reduce television, videotape, and video game use among low-income, African-American children. The effect sizes obtained can now be used to guide power estimates for future studies. In addition, we suggest that future studies include an untreated control group to help judge the effects of both intervention strategies, objective outcome measures, and additional outcomes (e.g., aggression levels or school performance).[13,14] These results provide optimism that

Table 2. Changes from baseline to post-test and intervention group differences

Outcome variables	Behavioral intervention (n=15)	Counseling intervention (n=13)	Effect size (Cohen's δ)[a]	p value
Mean (SD) hours of children's weekly TV, videotape, and video game use	−13.7 (26.1)*	−14.1 (16.8)**	0.00	0.71
Overall household TV use (SD)	−3.4 (6.8)	−2.0 (7.5)	0.20	0.57
Mean (SD) days breakfast with TV on	−1.7 (2.6)**	−1.1 (1.9)*	0.26	0.52
Mean (SD) days dinner with TV on	−1.4 (2.7)	−0.4 (1.6)	0.45	0.29
Mean (SD) weekly hours playing outside	1.00 (5.89)	−4.65 (9.43)*	0.71	0.057
Mean (SD) weekly hours of organized physical activity	2.50 (5.93)	−3.58 (4.71)**	1.13	0.004

*p<0.10 within-group baseline to post-test change by signed rank test.
**p<0.05 within-group baseline to post-test change by signed rank test.
[a]Effect size calculated as the difference between mean change scores for the behavioral intervention and counseling intervention groups, divided by the pooled within-group standard deviation (SD units). Effect sizes of 0.2, 0.5, and 0.8 are generally considered small, medium, and large, respectively.[11]

primary care providers may be able to help families reduce their children's television viewing through simple and feasible clinic-based interventions.

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