

REGULAR ARTICLE

Young low-income ethnic minority children watch less television when their mothers regulate what they are viewing

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INTRODUCTION

On a typical day, about 75% of U.S. children up to the age of six watch television (TV) (1) and many are consuming excessive amounts. Over 30% of preschool-aged children and over 60% of school-aged children in the United States watch more than the amount of TV recommended by the American Academy of Pediatrics (2–4). Given this widespread exposure to TV, the impact of viewing on the well-being of children is potentially quite large. Particularly notable is the association between excess viewing and such outcomes as obesity and attention problems (5,6). Considering these findings, there is an urgent need to enhance our understanding of modifiable factors influencing the amount of TV children watch.

Parenting practices are potentially modifiable factors that can influence child viewing behaviours. Some evidence suggests that restricting screen time is associated with reduced viewing amounts among children (7). Yet, a recent review of the literature on this topic noted that limited

ABSTRACT

Aim: Parenting practices can reduce how much television (TV) children watch. This study evaluated the longitudinal association between maternal regulation of TV content and the amount of TV watched by low-income ethnic minority children.

Methods: This was a secondary data analysis of the *Welfare, Children & Families: A Three City Study*. Data were used from ethnic minority mothers with a child from birth to 4 years old, collected over two waves approximately 16 months apart. The dependent variable was the amount of TV watched by the child (wave two). The main independent variable was the maternal regulation of TV content (wave one). Using multiple linear regression, we evaluated the relationship between maternal regulation of TV content and the amount of TV watched by the child, adjusting for covariates.

Results: Of the 835 mothers, 71% were high content regulators and 8% reported no content regulation. Children whose mothers reported no regulation watched more TV approximately 16 months later than those whose mothers reported high regulation of content ($\beta = 0.91$, 95% CI: 0.09–1.73).

Conclusion: Our findings suggest that regulating content influences viewing amounts in young children approximately 16 months later. Interventions focused on heightening parental regulation of content may improve content and diminish viewing amounts.

conclusions can be drawn about the influence of parenting practices on children's viewing habits and that more work in this area is needed (8).

Children from low-income and ethnic minority families are in the greatest need of effective interventions to address the amount of TV children watch. Children from such subgroups watch more TV than children from more advantaged and nonethnic minority families (9–11). It is

Key notes

- Parents can reduce how much television (TV) their children watch, and this study of 835 mothers explored maternal regulation of TV content and the amount of TV watched by low-income ethnic minority children.
- Children whose mothers reported no regulation watched more TV approximately 16 months later than those whose mothers reported high regulation of content.
- Interventions focused on heightening parental regulation of content may improve content and diminish viewing amounts.

Abbreviation

TV, Television.

thus notable that few studies to date have examined parenting practices regarding TV use in such populations (8). This omission is surprising, because parenting practices may vary importantly by sociocultural context (12).

The majority of studies that have evaluated parenting practices regarding TV viewing in relation to the amount of TV children watch have focused only on parental time regulations or have grouped parental time regulations with content regulations as general restrictive practices regarding TV viewing. This study contributes to this literature with its focus on parental regulations of TV content. To date, the specific influence of content regulations on the amount of TV children watch has seldom been examined. The findings from the few existing studies are mixed, with two showing cross-sectional support for a direct (13) or indirect (7) relationship between content regulation and TV viewing amounts and another study finding no relationship (14). Because content restrictions are common in this age group (7,15), understanding how such parenting practices influence the amount of TV a child watches is worth evaluating. Further, evaluating this relationship longitudinally can offer insight into the direction of the relationship between content regulation and the amount of TV children watch as well as the longevity of the relationship.

In this study, we utilised longitudinal data from the *Welfare, Children & Families: A Three City Study*, which offers a representative sample of low-income children from birth to 4 years old, living in low-income neighbourhoods in three U.S. cities. We evaluated the longitudinal association between maternal regulation of TV content and the amount of TV a child watched. If parents frequently regulated children's TV content, and these content regulations were associated over time with reduced viewing amounts in children, these potentially modifiable parental behaviours could be targeted in intervention programmes that aim to alter young children's consumption of media.

METHODS

Data for this study were drawn from waves one and two of the *Welfare, Children & Families: A Three City Study* (16). The original aim of the study was to evaluate longitudinally the well-being of low-income families after welfare reform. The methods for the *Three City Study* have been published (16). It was a household-based stratified random sample survey of over 2400 low-income mother/child dyads living in low-income neighbourhoods in Boston, Chicago and San Antonio. Data for wave one were collected from March to December 1999 using door-to-door interviews conducted in either English or Spanish. Wave two data were collected an average of 16 months later for our study sample, from September 2000 to June 2001. In this study, a subsample of data was utilised from participants who: (i) self-identified as Hispanic, Spanish, Latina or African-American, (ii) were mothers of a child from birth to 4 years old at the time of wave one ($n = 845$) and (iii) had complete data in both waves on all variables of interest. The University of

Colorado School of Medicine decided that the study should be exempt from review because the database was publicly available.

Measures

Dependent variable: amount of TV watched

Respondents were asked in both waves: 'On average, how many hours per day does your child watch TV?' Responses were captured as count values ranging from zero to 24. Values above 16 h were considered outliers and were dropped from the analyses. Outlier values were dropped from three participants in wave one and five in wave two.

Main Independent variable: maternal regulation of TV content

Participants were asked to respond to the following statement 'I let my child watch whatever TV shows he/she wants to watch', choosing from definitely true, sort of true, sort of false and definitely false. This item was adapted from an item included in the Raising Children Checklist (17). Utilising data from wave one, we categorised this variable into no content regulation (responses of definitely true), some content regulation (responses of sort of true and sort of false) and high content regulation (responses of definitely false).

Covariates

Demographic covariates from wave one were selected and included in the final model to control for known confounders. The covariates included the child's age in years (continuous) and gender and maternal education level (<12th grade, \geq high school degree/General Educational Development test), cohabitation status (cohabitating with spouse/partner or not), maternal race/ethnicity (African-American, Latina), maternal age (years) and city of residence (Boston, Chicago or San Antonio).

To adjust for the possibility that general maternal permissiveness might confound our findings, we included an overall measure of maternal permissiveness in parenting as a covariate. We utilised six items adapted by the *Three City Study* from the Raising Children Checklist to create a permissive parenting measure. The Raising Children Checklist is a measure of parenting quality, which includes a permissive domain (17), and has been validated in a low-income population (17). Participants were asked to respond to four statements that began with 'I let my child...' and ended (i) decide what his/her daily schedule will be, (ii) eat whatever he/she feels like eating, (iii) express any angry feelings he/she has towards me freely and (iv) go to bed whenever he/she feels like it. Participants also responded to two additional items: (i) I avoid having rules that my child must follow and (ii) I drop a rule if my child objects to it. Response options for all six items were definitely true, sort of true, sort of false and definitely false. Four of the six items were required to create a permissive parenting score (Cronbach's $\alpha = 0.66$). Two eligible participants did not respond to at least four of the six items and thus were dropped from the analyses.

Analyses

To evaluate the relationship of maternal regulation of TV content at wave one with the amount of TV watched at wave two, we conducted multiple linear regression, adjusting for all covariates and amount of TV watched at wave one. We used high content regulation as the reference group.

All statistical analyses were performed using Stata (Stata/SE 12.1 for Windows, StataCorp LP, College Station, TX, USA). Normalised weights were utilised to adjust for the complex sampling design as recommended by the lead investigators of the *Three City Study*.

RESULTS

A total of 845 participants in the *Three City Study* met the eligibility criteria for this study and ten participants were dropped from the analyses as described in the methods section, giving a final sample size of 835. Baseline characteristics are presented in Table 1. Of the 835 mothers included in these analyses, 41% were African-American and 59% were Latina. Slightly over a third (35%) reported less education than a high school degree. The majority of mothers (71%) were categorised as high TV content regulators, with 21% reporting some content regulation and 8% reporting none. The amount of TV watched at wave two varied by level of maternal regulation of TV content at wave one (see Fig. 1). The amount of TV watched by children of mothers with no content regulation compared to those with high content regulation was significantly higher ($p < 0.05$).

Table 1 Baseline characteristics of low-income Latina and African-American mothers of 0- to 4-year-old children ($n = 835$)* †

	Percentage or mean (SD) ($n = 835$)
Mean child age (y)	2.1 (1.4)
Male child (%)	50
Mean maternal age	26.2 (6.3)
Maternal cohabitation status	
Cohabiting	38
Maternal education	
< high school degree	35
≥ high school diploma/GED	65
Maternal race/ethnicity	
Latina	59
African-American	41
Amount of TV watched by child at wave 1 (h/day)	2.9 (2.4)
Amount of TV watched by child at wave 2 (h/day)	3.4 (2.2)
Maternal regulation of content (wave 1)	
High regulation	71
Some regulation	21
No regulation	8

*Data from *Welfare, Children & Families: A Three City study* that took place in Chicago, San Antonio and Boston starting in 1999.

†All results are weighted.
SD = standard deviation.

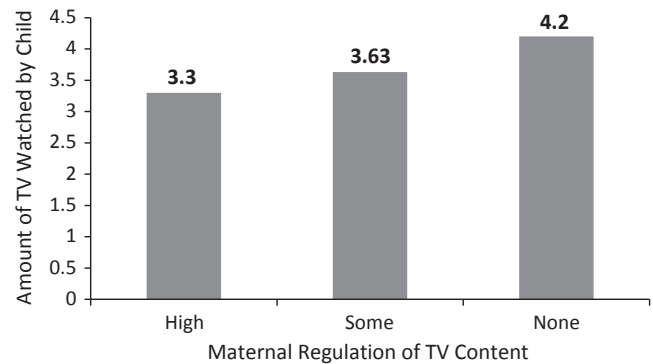


Figure 1 Amount of TV watched by child (wave 2) by level of regulation of TV content (wave 1) in low-income Latina and African-American mothers of 0- to 4-year-old children ($n = 835$)

The regression model evaluated the longitudinal relationship between maternal report of TV content regulation at wave one and child TV viewing amount at wave two adjusted for demographic factors and overall permissive parenting. The results (Table 2) indicated that children living in homes where the mothers said they did not regulate TV content viewed more TV daily than children whose mothers reported high TV content regulation ($\beta = 0.91$, 95% CI: 0.09–1.73). There was no significant difference between the amount of TV watched by the children of mothers reporting some content regulation and the children of mothers reporting high content regulation

Table 2 Amount of TV watched by child (hours/day) at wave two, predicted from maternal regulation of TV content at wave one (approximately 16 months earlier) in low-income Latina and African-American mothers of 0- to 4-year-old children ($n = 835$)*

Predictors and covariates (wave 1)	Amount of child TV watching (wave 2)	
	β coefficient	95% Confidence interval
Maternal regulation of content		
High	Ref	
Some	0.18	–0.38–0.74
None	0.91**	0.09–1.73
Child age (years)	–0.13	–0.32–0.06
Amount of TV watched by child	0.31**	0.18–0.45
Permissive parenting	0.27	–0.16–0.69
Maternal cohabitation status		
Not cohabitating	Ref	
Cohabiting	0.29	–0.33–0.91
Maternal education level		
< high school degree	Ref	
≥ high school diploma/GED	–0.46	–0.98–0.06

Also adjusted for child sex, maternal race/ethnicity, age and city of residence. Results are weighted.

*Data from *Welfare, Children & Families: A Three City study* that took place in Chicago, San Antonio and Boston starting in 1999.

** $p < 0.05$.

($\beta = 0.18$, 95% CI: -0.38 – 0.74). The amount of TV watched by the child at wave one predicted the amount of TV at wave two ($\beta = 0.31$, 95% CI: 0.18 – 0.45). General permissive parenting was not associated with TV viewing.

DISCUSSION

Excessive TV viewing is a known risk factor for numerous poor outcomes in children (5,6). Although parental regulation of content may affect the amount of TV a child watches, few studies have examined this possibility. This study used a representative sample of low-income ethnic minority mother–child dyads to describe the prevalence of maternal regulation of TV content in three U.S. cities and longitudinally evaluate the association of such content regulation with child TV viewing approximately one-and-a-half years later. This study is one of few to focus on this relationship and is the first known study to evaluate this relationship longitudinally. We found that about 8% of our sample reported no TV content regulation, with the majority reporting high content regulations. Children of mothers reporting no content regulation watched increased amounts of TV compared to children whose mothers reported high levels of content regulation. Thus, it appears that early parental regulation of content influences later amounts of TV viewing in young children.

The high percentage of mothers reporting at least some content regulation (92%) in our sample was similar to a finding by Vandewater et al. (7). They found that 88% of parents with children up to the age of six had TV content rules (7).

Only a handful of studies in young children have focused on the relationship between content regulations and the amount TV children viewed and all of those studies were cross-sectional (7,13). Using a measure comparable to our study, Holman et al. found similar results. They reported, in an Australian sample of high socio-economic status parents of preschoolers, a relationship between children being allowed to select their own programmes and higher amounts of child TV viewing (correlation 0.30, $p < 0.001$) (13). However, Vandewater et al. did not find a direct relationship between regulation of content and the amount of TV watched by a child in a large national sample of children from birth to 6 years old in the United States. Instead, they found that having programme rules was indirectly associated with increased viewing, mediated by parental presence during viewing (7). Measures used in other studies have been different, limiting the ability to compare findings (14). Given the mixed findings across samples and the varied measures, additional work using a valid and reliable measure of content regulation is needed to further evaluate the influence of such regulation on TV viewing amounts.

An important contribution of our study is our focus on low-income ethnic minority children. Both of these populations, low-income and ethnic minority children, are more likely to view excessive amounts of TV than higher income and nonethnic minority children (9–11). Yet, little is known

about parenting practices in such groups of parents. Looking at specific types of content restriction, Cheng et al. (18) report that African-American parents are more likely to restrict sexual content on TV than white parents, but found no difference in restriction of violent content. Another study reported no difference in reporting of programme rules by race/ethnicity (7). Yet, in a study of parents of two- to 11-year-olds, Barkin et al. (19) reported that compared to white parents, Latino parents were less likely to report restricting TV use and both African-American and Latino parents were more likely to report allowing unlimited use. In contrast, our findings indicate a high level of content regulation in low-income ethnic minority parents of young children. The focus on younger children in this study may contribute to this difference in findings given that content regulation is more common in parents of younger children (7). In regard to income, the findings are more consistent, with multiple studies reporting a higher likelihood of regulating TV content among parents with higher incomes (7,13). Nevertheless, all of these findings highlight the need to understand the influence of the sociocultural context on parenting practices. The findings of some studies that parental factors such as beliefs, self-efficacy, engagement and accessibility are all associated with parental restrictive practices provide further suggestions that sociocultural factors may play a role in parental regulation of TV viewing (20,21). A more in-depth examination of parental (e.g. knowledge, beliefs) and contextual (e.g. home, neighbourhood) factors influencing parenting practices is needed to inform the design of interventions targeting these high-risk populations.

Among the practices parents use to restrict TV viewing among preschoolers, content regulations are important for many reasons. For example, as our study suggests, such regulations may influence the amount of TV a child watches. However, many other reasons to regulate content in this age group also exist. There are benefits to viewing certain types (e.g. educational) of content; yet, there are also real risks to viewing other types of content (e.g. food/beverage commercials, violent content) (22,23). The high prevalence of content regulations in this study is encouraging, considering the negative impact some types of content can have on young children (22,24). Further research is needed to define specific content regulations and their relation to actual content and amount viewed in this age group.

An important result of this study is that the relationship between maternal regulation of content and the amount of TV a child watched was independent of a general maternal permissive parenting style. Thus, the influence of regulation of content on the amount of TV children watch is not simply because mothers with a permissive parenting style tend to also be permissive with TV use. Three studies have evaluated parenting styles and their relation to TV viewing (25–27). But the authors of a recent review on parenting practices regarding TV viewing, reported that drawing any conclusions about the relationship between parenting styles and TV viewing in children was currently impossible, given

the different age groups and measures used across studies (8). Our findings, however, suggest that certain practices (e.g. content regulation) may be linked to viewing amounts independent of permissive parenting style.

Although the data analysed here are >10 years old, these findings are still relevant today. Traditional TV continues to be the dominant form for consuming TV programming (28,29). This is despite the fact that many new viewing technologies have been introduced over the last decade (i.e. mobile technologies). This study also had numerous strengths, including the fact that, to our knowledge, this was the first study to examine longitudinally the relationship between regulation of content and child TV viewing. Additional strengths were the inclusion of a measure of overall maternal permissiveness in our analysis, as well as our focus on evaluating this in a sample of children at high risk for excessive viewing. However, several limitations warrant mention. First, the measure of the amount of TV a child watched was a single-item measure based on maternal report. Although widely used, this measure is not as good as other measures of TV viewing such as 7-day diaries (30). Additionally, the measure of regulation of content did not provide specific information about type of content being regulated and was also a single item. As a result, it did not capture the variety of ways that parents may regulate their child's viewing. Further, the number of individuals reporting no content regulations was small, just 8% of our sample size. This caused imprecision in our main results as demonstrated by the wide confidence interval. Additionally, it showed that enhancing content regulations should not be the only target for interventions focusing on reducing the amount of TV children watch. Future research would benefit by looking more in-depth at content regulation and its influence on TV viewing amounts.

CONCLUSION

Both the amount of TV children watch as well as content viewed have been associated with poor childhood outcomes (5,6). Our finding that a lack of maternal regulation of TV content was associated with increased amounts of TV watching in young children suggests the need to evaluate whether encouraging content regulations is an acceptable adjunct target behaviour for intervention. Parents without content regulations may be more likely to embrace such regulations, particularly compared to time regulations, simply because of the commonality of content regulations among parents in general (7). Behaviour change in this domain may not only improve the content children are viewing but also reduce the amount of time children spend watching TV.

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CONFLICT OF INTEREST

The authors have no conflict of interests to disclose.

References

1. Rideout VJ, Vandewater EA, Wartella EA. Zero to six: electronic media in the lives of infants, toddlers, and preschoolers. *Kaiser Family Foundation* 2003.
2. Certain LK, Kahn RS. Prevalence, correlates, and trajectory of television viewing among infants and toddlers. *Pediatrics* 2002; 109: 634–42.
3. Mendoza JA, Zimmerman FJ, Christakis DA. Television viewing, computer use, obesity, and adiposity in US preschool children. *Int J Behav Nutr Phys Act* 2007; 4: 44–54.
4. Anderson S, Economos C, Must A. Active play and screen time in US children aged 4 to 11 years in relation to sociodemographic and weight status characteristics: a nationally representative cross-sectional analysis. *BMC Public Health* 2008; 8: 366.
5. Braithwaite I, Stewart AW, Hancox RJ, Beasley R, Murphy R, Mitchell EA. The worldwide association between television viewing and obesity in children and adolescents: cross sectional study. *PLoS One* 2013; 8: e74263.
6. Christakis DA, Zimmerman FJ, DiGiuseppe DL, McCarty CA. Early television exposure and subsequent attentional problems in children. *Pediatrics* 2004; 113: 708–13.
7. Vandewater EA, Park S, Huang X, Wartella EA. “No–You can't watch that”: parental rules and young children's media use. *Am Behav Sci* 2005; 48: 608–23.
8. Jago R, Edwards MJ, Urbanski CR, Sebire SJ. General and specific approaches to media parenting: a systematic review of current measures, associations with screen-viewing, and measurement implications. *Child Obes* 2013; 9(Suppl): S51–72.
9. Hoyos CI, Jago R. Systematic review of correlates of screen-viewing among young children. *Prev Med* 2010; 51: 3–10.
10. Barradas DT, Fulton JE, Blanck HM, Huhman M. Parental influences on youth television viewing. *J Pediatr* 2007; 151: 369–73. e1–4.
11. Thompson DA, Sibinga EMS, Jennings JM, Bair-Merritt MH, Christakis DA. Television viewing by young Hispanic children: evidence of heterogeneity. *Arch Pediatr Adolesc Med* 2010; 164: 174–9.
12. Kumanyika S, Grier S. Targeting interventions for ethnic minority and low-income populations. *Future Child* 2006; 16: 187–207.
13. Holman J, Braithwaite VA. Parental lifestyles and children's television viewing. *Aust J Psychol* 1982; 34: 375–82.
14. Barr R, Danziger C, Hilliard M, Andolina C, Ruskis J. Amount, content and context of infant media exposure: a parental questionnaire and diary analysis. *Int J Early Years Educ* 2010; 18: 107–22.
15. Kennedy CM. Television and young Hispanic children's health behaviors. *Pediatr Nurs* 2000; 26: 283–8, 92–4.

16. Winston P, Angel RJ, Burton LM, Chase-Lansdale PL, Cherlin AJ, Moffitt RA, et al. *Welfare, children, and families: a three city study. Overview and design*. Baltimore: Johns Hopkins University, 1999.
17. Shumow L, Vandell DL, Posner JK. Harsh, firm, and permissive parenting in low-income families - Relations to children's academic achievement and behavioral adjustment. *J Fam Issues* 1998; 19: 485–507.
18. Cheng TL, Brenner RA, Wright JL, Sachs HC, Moyer P, Rao MR. Children's violent television viewing: are parents monitoring? *Pediatrics* 2004; 114: 94–9.
19. Barkin S, Ip E, Richardson I, Klinepeter S, Finch S, Krcmar M. Parental media mediation styles for children aged 2 to 11 years. *Arch Pediatr Adolesc Med* 2006; 160: 395–401.
20. Warren R. Parental mediation of preschool children's television viewing. *J Broadcast Electron Media* 2003; 47: 394–417.
21. Lampard AM, Jurkowski JM, Davison KK. Social-cognitive predictors of low-income parents' restriction of screen time among preschool-aged children. *Health Educ Behav* 2012; 40: 526–30.
22. McGinnis JM, Gootman JA, Kraak VI. *Food marketing to children and youth: threat or opportunity?*. Washington, DC: National Academies Press, 2006.
23. Kirkorian HL, Wartella EA, Anderson DR. Media and young children's learning. *Future Child* 2008; 18: 39–61.
24. Christakis DA, Zimmerman FJ. Violent television viewing during preschool is associated with antisocial behavior during school age. *Pediatrics* 2007; 120: 993–9.
25. Gable S, Lutz S. Household, Parent, and Child Contributions to Childhood Obesity. *Fam Relat* 2000; 49: 293–300.
26. Padilla-Walker LM, Coyne SM. "Turn that thing off!" parent and adolescent predictors of proactive media monitoring. *J Adolesc* 2011; 34: 705–15.
27. Jago R, Davison KK, Thompson JL, Page AS, Brockman R, Fox KR. Parental sedentary restriction, maternal parenting style, and television viewing among 10- to 11-year-olds. *Pediatrics* 2011; 128: e572–8.
28. Rideout VJ, Foehr UG, Roberts DF. *Generation M2: Media in the lives of 8- to 18-year-olds*. Menlo Park, CA: Kaiser Family Foundation, 2010.
29. The Nielsen Company. *A Look Across Media: The Cross-Platform Report*, 2013.
30. Vandewater EA, Lee S-J. *Measuring children's media use in the digital age: Issues and challenges*. Washington, DC: National Academies of Science, 2006: 1–74.

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