

# Media + Child and Adolescent Health: A Systematic Review



## Executive Summary

Media are increasingly pervasive in the lives of children and adolescents – the average kid today spends nearly 45 hours per week with media, compared with 17 hours with parents and 30 hours in school. However, until now there has been very little comprehensive analysis of the different research tracking the impact of media on children’s health.



Researchers from Yale University School of Medicine, National Institutes of Health, and California Pacific Medical Center reviewed 173 quantitative studies examining the relationship between media exposure and seven health outcomes:

- > childhood obesity
- > tobacco use
- > drug use
- > alcohol use
- > low academic achievement
- > sexual behavior
- > attention deficit disorder with hyperactivity

In 80% of the studies, greater media exposure is associated with negative health outcomes for children and adolescents. This meta-analysis of the best studies on media and child health published in the last 28 years clearly shows the connection between media exposure and long-term negative health outcomes, and especially childhood obesity.

### Overview

Several systematic reviews have investigated the relationship between media and violent behavior, but there has not been a comprehensive evaluation of the many studies examining other ways that media impact children's health.

Common Sense Media and the Department of Clinical Bioethics at the National Institutes of Health arranged this review to evaluate all of the best research on the impact of media exposure (both the amount consumed and the content) on children's health and development. This review was designed to compare the connections between media and seven health outcomes:

- 1 obesity
- 2 tobacco use
- 3 drug use
- 4 alcohol use
- 5 low academic achievement
- 6 sexual behavior
- 7 attention deficit disorder with hyperactivity (ADHD)

In addition to summarizing the evidence from 173 of the best studies, this review evaluated the relative strength of those studies, and outlined areas where more research is needed.

The reviewers searched for studies on all types of media (including television, movies, internet, video games, magazines and music) but most of the quality studies found involved television, movies and music. There were fewer studies available that examined the impact of internet and video games, and no studies on the impact of cell phones. (For details on how the reviewers decided which studies of media and child health to include, see Appendix 1.)

Because use of new media by kids is rising dramatically, future studies should focus on these new media, so that we improve our understanding of their impact on kids.

### Results

From 1980 to the present, researchers found 173 studies that were good enough to include. Overall, 80% of the studies concluded that increased media exposure was associated with a negative health outcome. In addition:

- > 46 of the 173 studies evaluated exposure to specific media content (such as scenes with smoking or music genres) and 93% of these studies found that exposure to specific media content was associated with negative health outcomes. One study found a positive association between exposure to specific types of media content (certain types of web pages) and a positive health outcome (better school performance).
- > 127 of the studies evaluated the number of hours children watched, played, or listened to media. Of these studies, 75% reported that more time spent with media was associated with a negative health outcome, while 20% found no statistically significant association between media and the health outcomes. Only 7 studies reported an association between media quantity and a positive health outcome.



## Result by specific health outcome

### Childhood Obesity

Strength of evidence: Grade A

All 73 of the studies evaluating media and weight assessed the quantity of media (rather than media content) in terms of hours of exposure daily or weekly. 86% of these studies found a statistically significant relationship between increased media exposure and an increase in childhood obesity.

In addition, of the 22 longitudinal studies, 18 (82%) concluded that more hours of media predicted increased weight over time.

A longitudinal study of 5,493 children reported that those who spent more than eight hours watching TV per week at age three were significantly more likely to be obese at age seven.

#### Prevalence of childhood obesity

##### Hours of TV per week



Source: Reilly, Armstrong, et al study

### Tobacco Use

Strength of evidence: Grade A

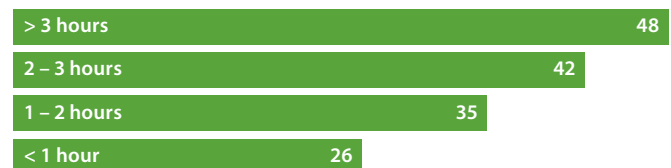
24 studies examined media and tobacco use, and 88% reported a statistically significant relationship between increased media exposure and an increase in smoking (usually defined as children trying smoking, or beginning to smoke at an earlier age.)

19 of the 24 studies assessed media content. Of these, 16 (84%) reported that viewing tobacco use in media had a significant association with an increase in tobacco use.

Of the 5 studies analyzing the number of hours spent watching TV, 4 (80%) reported a significant relationship between greater media exposure and increased tobacco use behavior.

#### Prevalence of smoking at age 26

##### Mean hours of TV per weekday between ages 5 to 15



Source: Hancox, Milne, Poulton. Lancet, July 17, 2004

Result by specific health outcome (continued)

Drug Use

Strength of evidence: Grade B

Eight studies evaluated media and drug use, and 75% reported a statistically significant relationship between media exposure and drug use (usually defined as past or current use of specific recreational drugs including cocaine, marijuana, methamphetamines, and ecstasy.)

Alcohol Use

Strength of evidence: Grade B

Ten studies examined media and alcohol use, and 8 studies (80%) reported a statistically significant association between media exposure and an increase in alcohol use (usually defined as children trying alcohol or the number of alcoholic beverages they consumed over a certain time period.)

Low Academic Achievement

Strength of evidence: Grade B

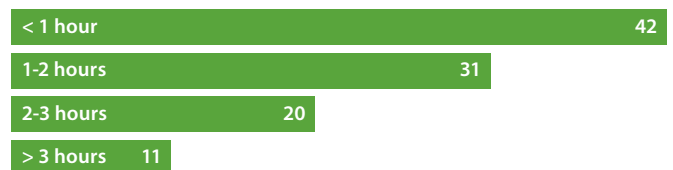
31 studies evaluated media and academic achievement, and 65% reported a statistically significant association between increased media exposure and poor academic outcomes (measured through standardized test scores or school grades.)

Of the 26 studies analyzing the number of hours spent watching TV, 62% reported a significant relationship between greater media exposure and low academic achievement.

Five of the studies looked at media content (either the type of television show viewed or musical genre preference). Four found an association between media content and lower school performance. One study of internet use showed that increased access to certain types of websites was associated with better school performance.

Students earning a bachelors degree or higher at age 26

Mean hours of TV per weekday between ages 5 to 15



Source: Hancox, Milne, Poulton. Archives of Pediatric and Adolescent Medicine, July 5, 2005

**Result by specific health outcome** (continued)

**Sexual Behavior**

Strength of evidence: Grade B

14 articles evaluating media and sexual behavior, and 13 (93%) found a statistically significant association between media exposure and a more rapid progression of initiation of sexual behavior. Eight studies examined media content (defined as exposure to sexual content on TV, film or internet), while six measured media quantity.

**Attention Deficit Hyperactivity Disorder (ADHD)**

Strength of evidence: Grade C

13 articles assessed media and ADHD (identified either by clinical assessment or use of a validated numerical scale). Nine studies (69%) found an association between media exposure and increased attention problems.



## Recommendations

**While there are many factors that contribute to childhood obesity and other negative health results for children, media is a crucial one. There are several steps that parents and others can take to reduce the negative impact of media on kids:**

### What parents can do:

- **Limit the amount of time kids use media.**  
Monitor their use, and explain to them why too much time in front of a screen is harmful.
- **Take kids outside to play.**  
Encourage them to spend more time playing instead of watching – and playing real games instead of virtual ones.

### What schools can do:

- **Teach kids to be smart media users.**  
Schools can help children – and parents – learn simple ways to manage the media in their lives, and to balance media use with more healthy activities.
- **Bring back physical education.**  
Sports and physical activities are an important part of kids physical and social development, and school is a great opportunity for kids to learn more about staying healthy.

### What policymakers can do:

- **Encourage more research on media and kids.**  
This analysis looked at many studies on the impact of TV and movies, but found very few studies of newer media. More research is needed on media like the Internet, video games, and cell phones, which kids are using in dramatically larger amounts today. Policymakers should also support more research on the impact of media content (rather than only the amount of media that kids consume.)
- **Establish limits on advertising of junk food to kids.**  
As the amount of time kids spend with media has grown, so has the amount of money spent advertising to kids – much of it advertising junk food. Policymakers can improve the media environment for kids by
- **Develop public service advertising campaigns that encourage healthy habits.**  
PSA campaigns could reduce the negative impact of media by encouraging kids to spend more time outside, engaged in healthy activities.

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## Appendix 1: Methodology

Researchers conducted a primary review of articles that quantitatively assessed the relationship between media and the health outcomes of interest. Researchers defined media as television, movies, internet, electronic/video games, magazines, and music, excluding advertising, journalism, and public service announcements.

## Data Sources

Researchers conducted electronic searches in MEDLINE, EMBASE, the Cumulative Index to Nursing and Allied Health Literature, PsycINFO, and Current Contents from 1980 to 2008 using appropriate database-specific search terms for media as well as the health outcomes of interest.

Articles were included in this review if they met the following 5 criteria:

- 1 quantitative analysis of the relationship between media quantity or content and one or more of the health outcomes of interest;
- 2 published in or after 1980;
- 3 published in a peer-reviewed journal;
- 4 written in English; and
- 5 provided a description of methods and results.

Each article was formally extracted and evaluated for quality of reporting as well as threats to internal and external validity using validated instruments.

## Strength of Evidence Grading

An expert panel comprised of two researchers and one pediatrician reviewed the data on each health outcome. Following independent grading, a modified Delphi technique was used to achieve expert panel consensus on the quality score of each individual study. A quality score 6 or higher was the definition of a “good” study. The panel’s mean scores in each of three domains – quality, quantity, consistency – were combined to yield an overall mean score for each topic area. Scores ranged from 0 (poor) to 10 (excellent) in each domain, and the maximum overall score possible was 30 points in each outcome area. Scores were converted into strength of evidence grades for each topic area, corresponding to U.S. Preventive Service Task Force grades.

Common Sense Media is a non-partisan, non-profit resource that helps families and educators teach kids how to be safe and smart in today’s 24/7 media world. Go to [www.common sense media.org](http://www.common sense media.org) for thousands of reviews and expert advice.

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