

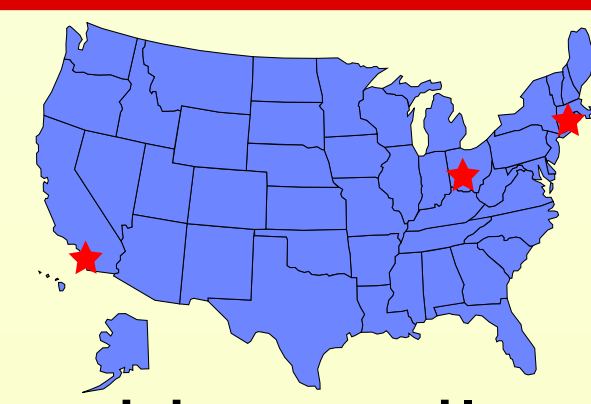
## Introduction

The American Academy of Pediatrics recommends that children watch less than 2 hours of TV per day. Recent data suggest that 35% of high-school age adolescents watch more than 3 hours per day. This is alarming considering the relationship between sedentary behavior and health outcomes such as obesity, metabolic syndrome and hypertension. Additional sedentary pursuits in the form of video game and computer use have also been linked to obesity in children and adolescents.

The purpose of this study was to investigate the role of screen time rules, parent-child agreement on rules, and media availability on screen time use in adolescents.

## Methods

Parents and adolescents (N = 160 dyads) from Boston, Cincinnati and San Diego completed demographic, screen time rules, availability of media items, and screen time behavior as part of a comprehensive survey. All participants were recruited by mail, phone and in-person. Surveys were distributed in-person and by mail.



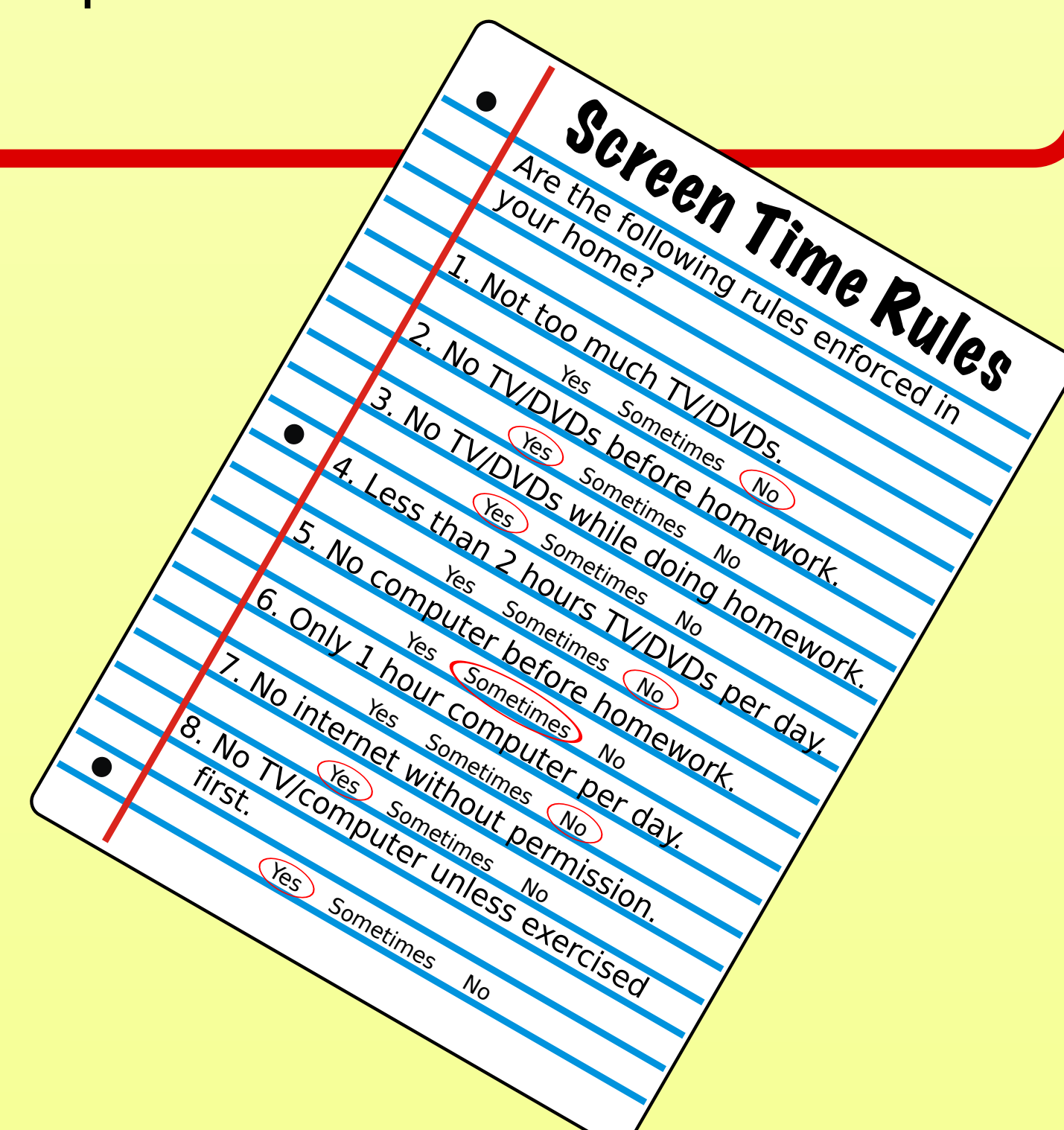
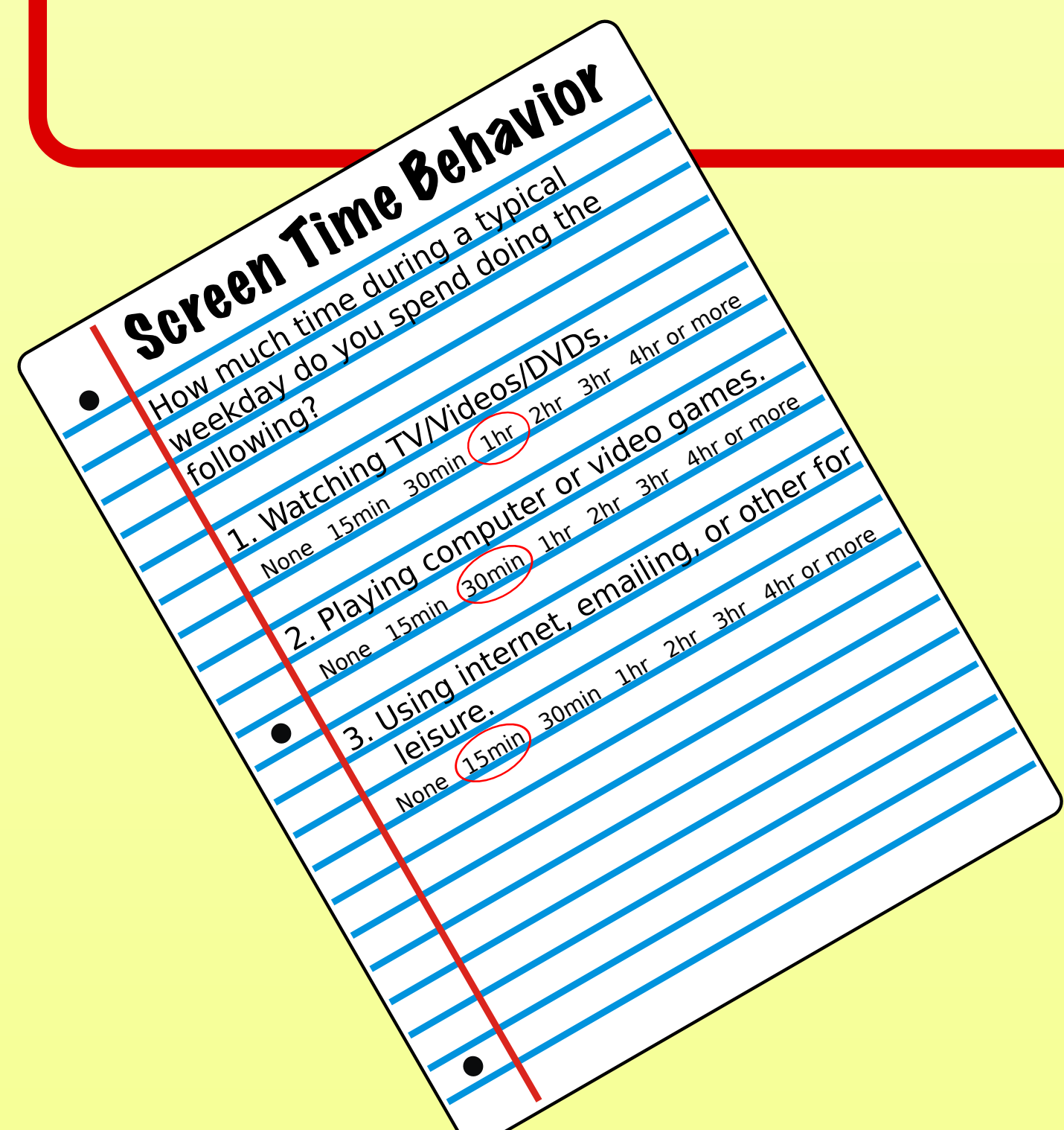
## Measures

The survey was developed from existing measures, previous research and through a formative research process.

Screen time behaviors were assessed through a sedentary behavior questionnaire that consisted of 11 items. Responses to behaviors were measured on a 7-point scale corresponding to the duration of time spend on each behavior on weekdays and weekends.

The presence of screen-time rules was assessed using an 8-item measure with a 3-point scale (Yes, No, Sometimes).

Media availability in the bedroom was determined through the use of questions such as, "number of TVs/Video game systems in bedroom" and "number of desktop computers in bedroom".



## Analysis

A series of multiple regression models were specified for the three screen time behaviors. Models were created for both parent and adolescent report. All independent variables were centered prior to estimating the models.

- Dependent Variables**
  - TV Viewing
  - Video game use
  - Computer use
- Independent Variables**
  - Behavior specific rules (#)
  - Parent/Child rule agreement (yes/no)
  - Media in bedroom (yes/no)
  - Gender
  - Ethnicity (White/Non-white)
  - Age
  - Income (>50k)



## Results

The adolescent sample was 51.9% female, with a mean age of 14.6 (SD=1.7) years and 41.9% identified as non Hispanic-white race/ethnicity. The mean age of the parents was 45.1 (SD = 6.8) years and 62% reported a income greater than \$50k/year.

Parent and adolescent report of screen time behaviors (hrs/day)

	Parents				Adolescents			
	Weekday		Weekend Day		Weekday		Weekend Day	
	M	SD	M	SD	M	SD	M	SD
Watching TV/Videos/DVDs	1.82	1.29	2.37	1.25	1.82	1.35	2.40	1.36
Playing computer or video games	0.86	1.14	1.13	1.23	0.87	1.17	1.07	1.30
Using internet, emailing, other for leisure	1.11	1.12	1.30	1.23	1.26	1.17	1.62	1.38

Regression models predicting screen time behavior - Parents

Model	Variable	Beta	SE	$\beta$	F	R <sup>2</sup>
TV Viewing	Constant	1.94	0.10		6.27***	0.21
	TV Rules	-0.17	0.08	-0.21*		
	Rules Agreement	-0.15	0.19	-0.06		
	Agreement x rules interaction	-0.28	0.15	-0.17^		
	TV in bedroom	0.47	0.18	0.20*		
	Gender (male)	-0.34	0.18	-0.14		
	Ethnicity (white)	-0.37	0.18	-0.16*		
	Age	0.04	0.06	0.06		
	Income (>50k)	0.14	0.19	0.06		
Video Game Use	Constant	1.03	0.10		6.72***	0.23
	Total Rules	0.01	0.04	0.02		
	Rules Agreement	-0.23	0.18	-0.10		
	Agreement x rules interaction	-0.18	0.08	-0.17*		
	Game in bedroom	0.27	0.19	0.11		
	Gender (male)	-0.99	0.17	-0.45***		
	Ethnicity (white)	-0.38	0.17	-0.17*		
	Age	0.02	0.05	0.02		
	Income (>50k)	-0.11	0.17	-0.05		
Computer Use	Constant	1.22	0.11		7.21***	0.22
	Computer Rules	-0.14	0.09	-0.14		
	Rules Agreement	-0.65	0.22	-0.23**		
	Desktop in bedroom	0.04	0.17	0.02		
	Gender (male)	1.01	0.16	0.47***		
	Ethnicity (white)	-0.38	0.17	-0.17*		
	Age	-0.01	0.05	-0.02		
	Income (>50k)	-0.20	0.17	-0.09		

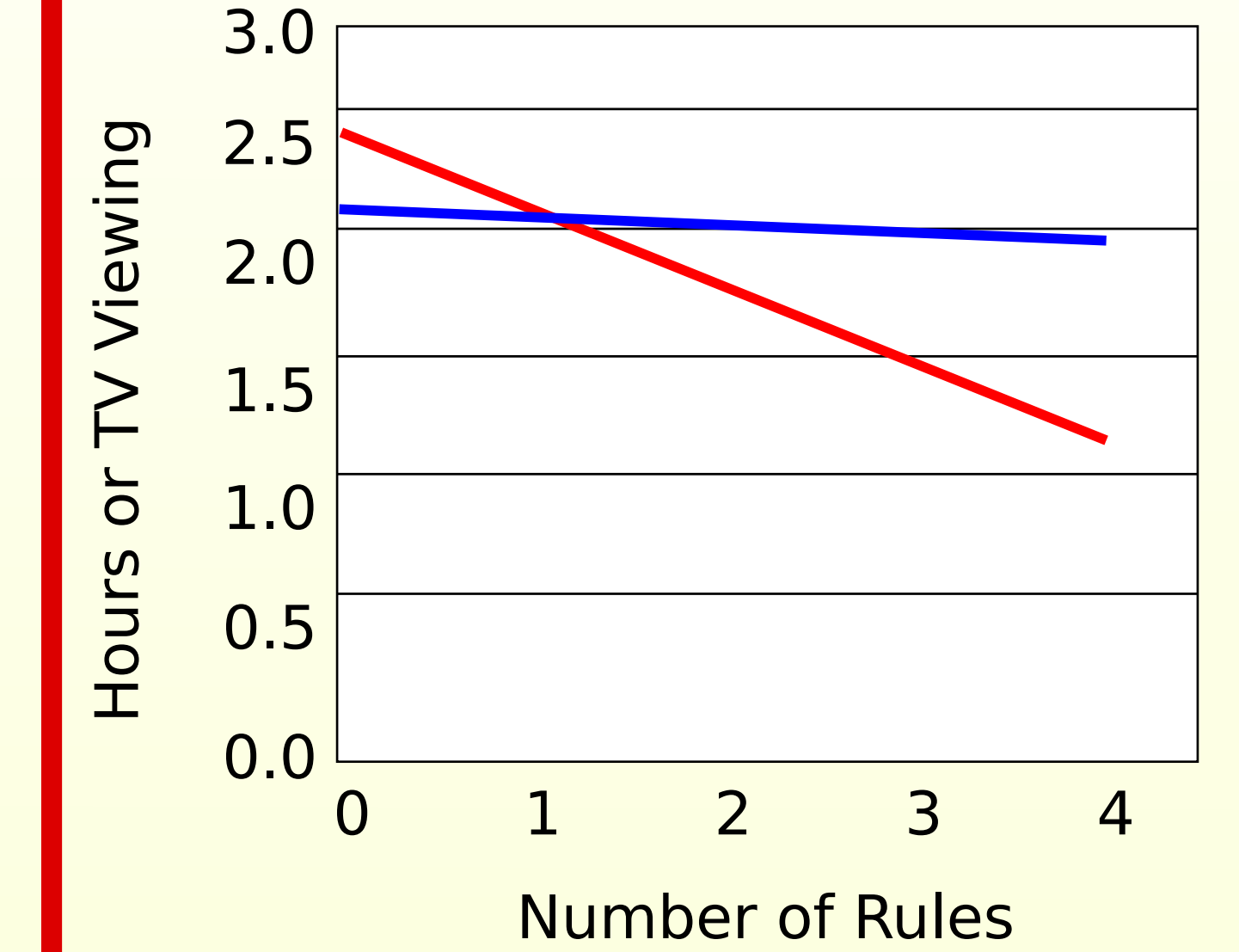
Regression models predicting screen time behavior - Adolescents

Model	Variable	Beta	SE	$\beta$	F	R <sup>2</sup>
TV Viewing	Constant	1.99	0.10		6.68***	0.21
	TV Rules	-0.18	0.07	-0.23**		
	Rules Agreement	-0.08	0.19	-0.03		
	TV in bedroom	0.61	0.20	0.25**		
	Gender (male)	-0.09	0.19	-0.04		
	Ethnicity (white)	-0.52	0.20	-0.21		
	Age	0.06	0.06	0.08		
	Income (>50k)	-0.06	0.20	-0.02		
	Video Game Use	Constant	1.15	0.10		8.59***
Total Rules		-0.10	0.04	-0.19*		
Rules Agreement		-0.23	0.17	-0.10		
Game in bedroom		0.48	0.19	0.19**		
Gender (male)		-0.88	0.17	-0.39***		
Ethnicity (white)		-0.21	0.17	-0.10		
Age		-0.14	0.02	-0.21**		
Income (>50k)		-0.45	0.17	-0.19*		
Computer Use		Constant	1.29	0.12		1.60
	Computer Rules	-0.23	0.11	-0.19*		
	Rules Agreement	0.24	0.24	0.08		
	Desktop in bedroom	0.08	0.20	0.03		
	Gender (male)	0.21	0.19	0.09		
	Ethnicity (white)	-0.20	0.20	-0.09		
	Age	0.06	0.06	0.09		
	Income (>50k)	0.14	0.20	0.06		

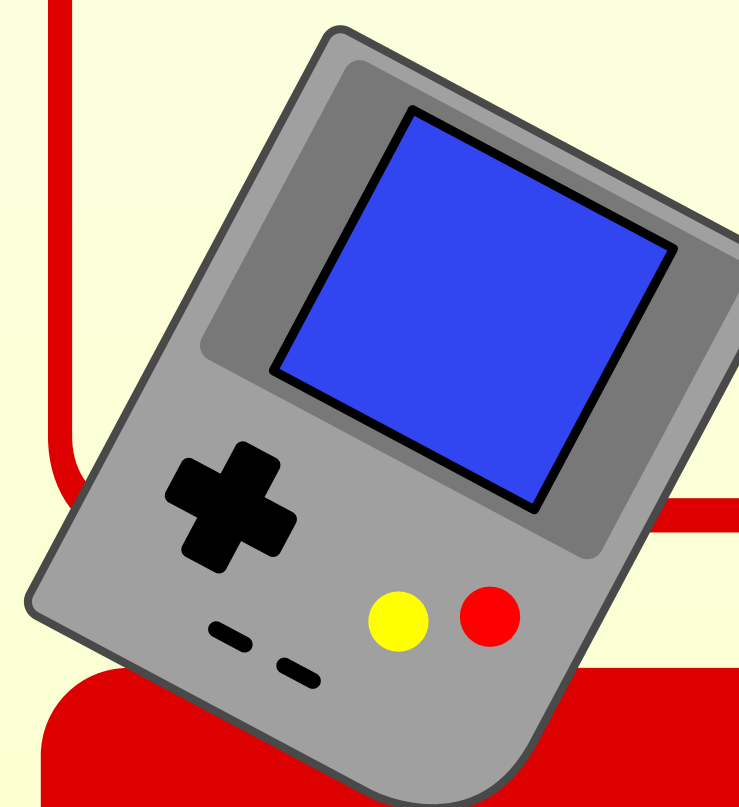
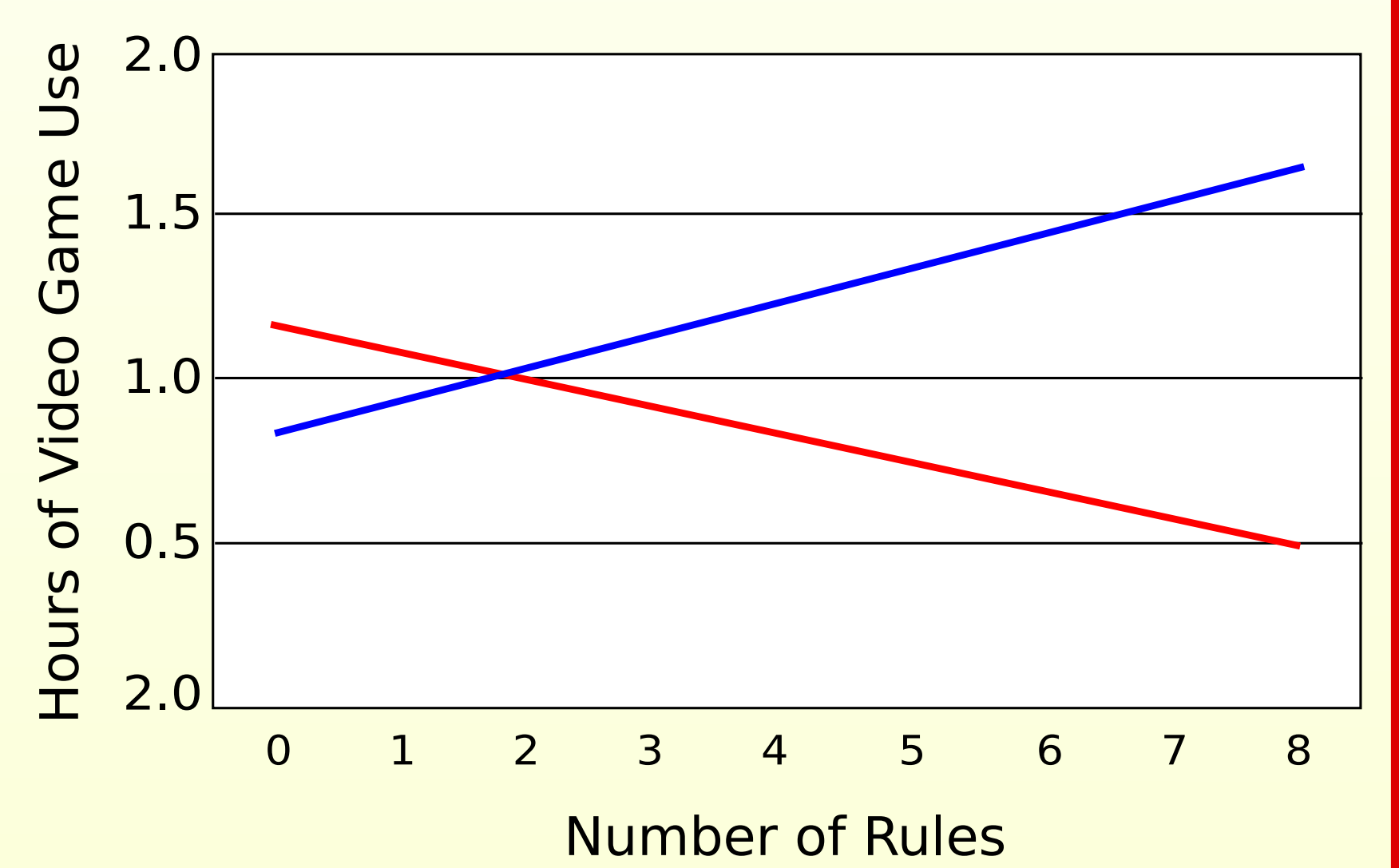
Note. ^ = p < .10, \* = p < .05, \*\* = p < .01, \*\*\* = p < .001

## Results

Interaction of Number of Rules and Rules Agreement on TV Viewing



Interaction of Number of Rules and Rules Agreement on Video Game Use



## Discussion

The regression models indicated that adolescent report of rules for watching TV, playing video games, and using the computer was associated with significantly lower levels of these behaviors. For parent report, this relationship was only found for TV viewing rules.

The interaction of rules and parent-adolescent agreement on rules for TV viewing and video game use was found for parent report models. For TV viewing, the interaction indicated that parent-adolescent agreement on rules strengthens the main effect of number of rules. The lack of a main effect for video game use suggested that rules were only related to behavior when parent-adolescent agreement on rules was present.

Access to media items in the bedroom was also show to be a significant predictor of adolescent reported time spend watching TV or playing video games. The models indicated that the presence of a TV in the bedroom was associated with 36 minutes more viewing time. A video game system in the bedroom was associated with almost 30 minutes more video game use.

## Conclusion

Our findings suggest that parent report of their adolescent's screen time behavior was lower when parents reported having screen time limiting rules and adolescents agreed on the presence of rules. Specific and clearly communicated rules in the home for limiting screen time behaviors, as well as limiting access to media, may help adolescents meet screen time guidelines that can impact overall sedentary time and energy expenditure.