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Parental Restriction of Mature-rated Media and Its Association with Substance Use among Argentinian Adolescents

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Abstract

Objective—To assess the independent relation between parental restrictions on mature-rated media (M-RM) and substance use among South American adolescents.

Methods—Cross-sectional school-based youth survey of n=3,172 students (mean age 12.8 years; 57.6% boys) in three large Argentinian cities. The anonymous survey queried tobacco, alcohol, and drug use using items adapted from global youth surveys. Adolescents reported M-RM restriction for internet and videogames use, television programming and movies rated for adults. Multivariate logistic regression models assessed the association between parental M-RM restriction and substance use after adjusting for hourly media use, measures of authoritative parenting style, sociodemographics, and sensation seeking.

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Results—Substance use rates were 10% for current smoking, 32% for current drinking alcohol, 17% for past 30-day binge drinking, and 8% for illicit drug use (marijuana or cocaine). Half of respondents reported parental M-RM restriction (internet 52%, TV 43%, adult movies 34%, videogame 25%). Parental M-RM restriction was only modestly correlated with authoritative parenting measures. In multivariate analyses M-RM restriction on all four venues was strongly protective for all substance use outcomes. Compared with no restriction, odds ratios for substance use for full restrictions were 0.32 (0.18–0.59), 0.53 (0.38–0.07), 0.36 (0.22–0.59), and 0.49 (0.26–0.92) for current smoking, drinking, binge drinking, and illicit drug use respectively. The most important single M-RM venue was movies.

Conclusion—This study confirms the protective association between parental M-RM restriction during adolescence and multiple substance use outcomes, including illicit drugs. M-RM restriction is independent of traditional parenting measures. The preponderance of the evidence supports intervention development.

Keywords

tobacco; alcohol; drugs; youth; parenting; prevention

INTRODUCTION

Evidence is accumulating that exposure to mature-rated media (M-RM) has a profound influence on the behavior of children and adolescents, and that parental restriction of these exposures is an effective and appropriate addition to generally accepted areas of parenting (e.g., authoritative parenting).¹ The evidence links exposure of M-RM to many outcomes. Cross-sectional² and prospective studies^{3,4} have shown that exposure to R-rated movies affects substance use, in part through exposure to depictions of risk behaviors in these movies, but also by affecting trajectories of risk-taking personality traits like sensation seeking.^{5–7} Moreover, prospective studies suggest that playing mature-rated risk-glorifying videogames predicts not only increased risk for aggression, but also use of multiple substances^{8,9} and risky driving.¹⁰ Other studies address the relation between access to M-RM and poor school function.¹¹ The accumulating evidence indicates that the effects of M-RM exposures may exceed simple social cognitive influences by enhancing risk taking personality characteristics and general deviance.

These findings raise the possibility for prevention interventions to motivate and assist parents in limiting exposure to M-RM during late childhood and early adolescence, starting before the child accumulates exposure to these influences. All available evidence suggests that M-RM exposure is widespread and begins during early adolescence.^{3,10} The best documented evidence for a prevention effect for parental M-RM restriction is for viewing mature-rated movies. The 2012 Surgeon General's report¹² on smoking in adolescents and young adults included a meta-analysis of cross-sectional and prospective studies for adolescent smoking. After adjusting for a variety of confounding influences—including authoritative parenting style—parental restrictions of mature-rated movies were associated with markedly lower rates of smoking. The parental M-RM—smoking associations were mediated, in part, through lower exposure to movie smoking.⁴ One more recent study of Scottish adolescents combined movie and television restriction into an index and found

independent protective association with smoking;¹³ in that study there was no association between internet restriction and smoking. Other studies have found parental movie restrictions to be associated with lower rates of alcohol use and binge drinking.^{3,14,15} In one study¹⁵, latent constructs of parental movie restriction were modeled separately from a general parenting construct, with movie restriction effects on behavior shown to be mediated through lower exposure to R-rated movies.

No study to our knowledge has assessed media parenting in Latin American adolescents. In Argentina movies are evaluated and rated by the government through an Evaluation Committee in the National Institute of Movies and Audiovisual Arts. The evaluation Committee includes psychologists, lawyers; journalists, teachers, and experts in communication. They rate films according to their subjective cultural norms without any formal code or framework. Movies are rated in four categories: ATP (General audiences), may contain mild violence, language and mature situations; Ages 13 and older, may contain moderate violence, mild sexual content and mature situations; Ages 16 and older, may contain stronger violence, sex and coarse language; 18 and older, are movies with strong violence, sex and coarse language. Previous studies suggest that movie rating systems in some Argentina are more liberal in their treatment of sexual content, drug use and violence in comparison with US rating system.¹⁶ The present study was conducted to extend this research by testing the association between substance use and parental rules regarding the internet, videogames, television, and movies in the middle income of Argentina, which, to our knowledge, is the first study to address this topic in Latin America. Additionally, for the first time to our knowledge, we extend our outcomes beyond tobacco and alcohol to include illicit substance use. As with other previous studies, we examined the relation of M-RM parenting to the authoritative parenting construct, this time surveyed for both mothers and fathers, to confirm the relative independence of media parenting from this more traditional parenting construct.

METHODS

Study sample and procedure

A convenience sample of 33 schools from three large cities in Argentina (Buenos Aires, Córdoba, Tucumán) participated in the study (n=15, 8, 10, respectively), with public schools identified by the Ministry of Health and Ministry of Education (n=18) and private schools identified through personal contacts (n=15). At the time of the survey there were 916 schools in the three cities, 492 in Buenos Aires, 282 in Cordoba and 142 in Tucuman; thirteen schools were selected because they have participated in the Global Youth Tobacco Survey in 2007 and this survey randomly selected schools from across the country, then the sample was expanded using a “snow ball” strategy. Private schools were included in the sample because 26% of students attend these schools in Argentina. The survey was self-administered in 8th-grade classrooms between May and June of 2014. Passive consent was requested from parents or caretakers, and students signed an active consent form to allow follow-up contact for subsequent surveys. Students were assured that their individual data would not be seen by parents or school staff. The questionnaire used anonymous link procedures to allow for follow-up. The research protocol was approved by an NIH-certified

human subjects research board in Buenos Aires based at Centro de Educacion Medica e Investigaciones Clinicas (CEMIC).

Development of Questionnaire Measures

This report is part of a larger study that aims to assist researchers in middle income Latin American countries in assessing media exposures and their association with adolescent risk behaviors in adolescents that reside there. As part of that study, we wished to also examine media parenting and it's relation to both authoritative parenting and risk behaviors. The study questionnaire included a range of items on media use, tobacco and alcohol marketing exposures, social influences, and perceptions and use of tobacco, alcohol and drugs, most of which had been used in surveys for adolescents previously implemented in Argentina, Mexico, and in the US.^{17,1819} Items in English were translated and reviewed by Argentinian Spanish-speaking research staff and pilot tested with students in Buenos Aires to evaluate students' understanding of questions, instructions and confidentiality statements.

The self-administered questionnaires were completed by all the students who accepted to participate in the classroom under the supervision of trained research staff. Survey completion took approximately 45 minutes, after which project staff placed the survey in an envelope in front of the participant. Students who were absent on the day of survey administration were excluded. Questionnaires included questions about parental restrictions on mature-rated media, demographic, family and school characteristics, school performance, alcohol and illicit drug consumption, smoking, peer and family smoking and drinking, personality constructs, parenting style and access to media.

Assessment of substance use

We assessed current smoking, drinking, and illicit drugs use. A respondent was considered to be a current smoker if he or she reported any number greater than zero to "During the past 30 days, on how many days did you smoke cigarettes?" We created similar outcomes for alcohol consumption: any use of alcohol in past 30 days (current drinking), as well as binge drinking (boys/girls who had ever drunk more than 5/4 drinks in a row). For illicit drug use, participants were asked about ever use of marijuana and, in a separate question, ever use of cocaine or crack; because they are the most commonly consumed illegal drugs among early adolescents in Argentina.²⁰

Intervention of interest

We assessed parental media restrictions in four media venues with the following questions: "Do your parents have rules about what you can see or do online?" (no, yes), "Do your parents have rules about what videogames you can play?" (no, yes), "Do your parents set rules about what TV programs you can watch?" (no, yes), and "How often do your parents let you watch movies or DVD qualified as recommended for over 16 or 18 years?" (very often, often, sometimes, never). To create the media restriction index, the latter variable was dichotomized to compare never allowed with the three other categories. The index varied from 0 to 1 and students received 0.25 point for each parental rule they reported.

Covariates

The authoritative parenting style, characterized by warmth and support (responsiveness) combined with rule setting and enforcement (demandingness), is associated with lower risk of substance use by adolescents^{1,21–30} school achievement,^{31,32} and other outcomes. Our past experience suggested that media restrictions are applied independently of more traditional parental monitoring activities.¹⁵ We drew items from the Authoritative Parenting Index³³ to measure parenting style, we used three items to describe responsiveness (e.g., “She/he makes me feel better when I’m upset”) and another three items for demandingness (e.g., “She/he knows where I am after leaving school.”) for mothers (Cronbach’s alpha among three items was 0.82 & 0.70 for responsiveness and demandingness respectively) and for fathers (alpha 0.89 & 0.92 respectively) separately using all four measures as covariates. We assessed media access both in terms of ownership (e.g., “Do you have a phone with internet access?”), and bedroom access (e.g., “Do you have internet access in your room?”). Covariates also included age, sex, and parents’ years of formal education (≤ 7 , 8–12, >12), whether they attended public or private school, whether they had been retained in school, and whether they had a job. Sensation seeking³⁴ was measured using four items: “I like to do scary things”; “I like to explore strange places”; “I like new and exciting experiences, even if I have to break the rules”; “Sometimes I do “crazy” just for fun”,²⁹ with responses on a 5-point Likert scale, and responses averaged to create an index that ranged from 1 to 5, internal consistency for the sensation seeking items was high (alpha = 0.79). Additional covariates in the models of current smoking were friend and household smoking, and for alcohol, friend drinking. Ascertainment of parent drinking was considered a sensitive question in these schools, and furthermore has not been found to be particularly influential in our prior studies of media use and drinking behaviors.³⁵

Statistical analysis

First, we conducted descriptive analyses to profile the sample and examine the distribution of demographics and media restrictions. Bivariate relationships were explored using two-way graphs with chi square testing and Pearson’s correlation coefficients. Multilevel logistic regression models (with random intercepts for school) were used to assess the association between parental media restriction and each of the four substance use outcomes providing unadjusted and adjusted estimates and confidence intervals for the odds ratios. We then substituted the media restriction index; because it was scaled from 0–1, the index measure tested the effect of combining all four media rules on our estimates for substance use risk.

Separate models were fit to examine the associations for parental restrictions entered individually and as a cumulative index. We also ran models including aggregate variables at school-level, such as proportion of girls, average age and proportion of students whose parents with university or higher educational attainment. We found no difference for the model results associated with the primary study variables and therefore present only models with random intercept for schools. Missing data was less than 1% for all variables except for parental education, which was 11.9%. To control for respondent bias we imputed parental education using multinomial logistic regression³⁶. Since the pattern of findings was similar in direction, strength and statistical significance for primary study variables, we present the

results from the analyses that used list wise deletion of missing cases. All data analyses were conducted by one author (AP) using Stata V.13.0 (Stata Corp, College Station, TX, USA).

RESULTS

Description of the adolescent participants

Of 3826 eligible students 3172 completed the survey (response rate 83%). The mean age of participants was 12.8 years (standard deviation = 0.95), 42% were female, and most parents had more than 8 years of education (Table 1); 32% attended private school and 24% had been retained a grade in the past. Access to media was high, 85% had a cellular phone and 86% had a television in the bedroom. Means for responsiveness and demandingness were higher for mothers than fathers. About half of students reported rules on internet access, 43% reported TV rules, 33% were never allowed to watch mature-rated movies, and only 25% reported rules about videogames. Few adolescents reported parental rules in 3 (17%) or 4 (8.5%) categories. Substance use prevalence ranged from 32.3% for 30-day drinking to 8.2% for any prior use of marijuana or cocaine.

Parental media restrictions and their bivariate relation with covariates and outcomes

As shown in Table 2, scores on the parental media rules index were moderately correlated with the four authoritative parenting style variables (highest correlation was 0.30, with maternal demandingness). Additionally, correlation with media access was only -0.13 , suggesting that parental rules addressed media content rather than access to television, mobile phones, etc. Student age was inversely correlated with parental M-RM rules (Pearson correlation coefficient between age and media restriction index = -0.24 , $p < 0.001$).

Figure 1 shows the relation between greater restriction of M-RM and substance use. M-RM rules were associated with substantially lower substance use across all substances and all venues, including illicit substances. The differences are particularly large for movies. For example, prevalence of marijuana, cocaine or crack use for those allowed to watch mature-rated movies all the time is over 20% compared to only 4% for adolescents who never are allowed to watch such movies.

Multivariate analyses

When media rules were entered in multivariate analyses separately, all estimates were in the direction of a protective association (odds ratios less than 1 indicate that media rule application lowers risk of substance use), but not every association was statistically significant (Table 3). The strongest and most consistent association was for limits on watching mature-rated movies, which were inversely associated with all outcomes. Internet rules were inversely associated with all substance use outcomes except for illicit drug use, and TV rules with significantly lower adjusted odds ratios for smoking and binge drinking. Videogame rules did not have a significant association with any substance use outcome. When modeling the effect of combined rules, and comparing those with none versus all four, current drinking and illicit drug use was half as likely (adjusted odds ratios 0.53 (95% confidence interval 0.38, 0.75) and 0.49 (0.26, 0.92) respectively), and smoking and binge drinking about one-third as likely (adjusted odds ratios 0.32 (0.18, 0.59) and 0.36 (0.22,

0.59) respectively). In all cases except illicit substances, combining rules was associated with a stronger protective effect than applying any of the rules individually.

DISCUSSION

This study extends findings to Latin American youths, that parental M-RM restrictions are associated with lower rates of substance use. As with other studies, there was a linear dose-response between tighter parental restrictions for mature movies and lower use of all substances. Extending many previous studies, this one examined parental rules in multiple media venues besides movies and found independent associations, over-and-above movie restrictions, for internet and TV rules. The associations for the combined index in the multivariate model were sizable, with risks decreasing by a factor of between 0.3 and 0.5 for full compared to no restrictions across substances. These protective associations are similar in size to two other studies, a US study that examined multiple movie monitoring (multivariate association sizes for multiple monitoring for smoking and drinking ranging from 0.3 to 0.5)³⁷ and a Scottish study that combined monitoring of television and movies (multivariate association 0.37).¹³ These studies suggest additive benefits of media restrictions when applied to multiple media venues.

Our null findings on videogame restriction are consistent with a previous study of Scottish adolescents¹³ but contrast with findings of a previous study that examined mature-rated videogame restriction and substance use and found that allowing adolescents to play mature-rated risk-glorifying videogames was associated with subsequent tobacco and alcohol use.⁸ Our study may have benefitted from assessment of playing specific games (e.g., Grand Theft Auto), in addition to mature-rated games generally. In addition, the analysis was confined only to video gamers, who had lower risk for substance use as a group, but among whom playing mature-rated games conferred relatively higher risk.

Over a decade ago, Sargent and colleagues reported a cross-sectional study of Northern New England adolescents showing that parental restriction of exposure to R-rated movies was associated with lower exposure to smoking in movies and lower rates of adolescent smoking.⁷ They tentatively suggested that motivating and assisting parents to restrict access to R-rated movies could have profound indirect effects on substance use by reducing exposure to an important social influence, movies. As described above, multiple researchers have since confirmed these findings in diverse samples of adolescents from Europe, the United States, and now, Latin America, using a variety of observational designs, including longitudinal research. The findings are beginning to be extended to other media venues besides movies, and to alcohol, illicit substances, and other risky behaviors. The evidence suggests that engaging in mature-rated media at an early age enhances risk through social influence and other mechanisms that involve trajectories for sensation seeking. That is, the evidence suggests that mature-rated media engagement may alter certain personality characteristics over time.^{8,38} Nevertheless, adolescents who are predisposed to sensation seeking may be independently attracted to mature-rated media, which reinforces risk behaviors that are already developing. It is also possible that the extent of sensation seeking tendencies influences the parenting style of adolescents.⁵ Our cross-sectional study could

not adequately explore these possibilities, which should provide a focus for future investigations.

Although still commonly taught in schools,³⁹ enthusiasm for school-based approaches to substance use prevention has waned among some researchers. This is partly because teachers lack the classroom time to teach them, but also because of attenuation of the protective effects for programs that followed adolescents into high school.⁴⁰ As an adjunct to school-based prevention programs, it may be time to consider the addition of interventional approaches that take advantage of media content filters to assist parents in restricting access of children and young adolescents to mature media venues. Restrictions in content will be much easier for parents to tolerate compared to time-with-media restrictions, which require busy parents to find other things for their children to do. Restrictions should be aimed at children aged 8–10, before they have experience with mature-rated media. Parents also need clear guidance on when and how to relax these rules as adolescents age and gain independence. That transition is a period where media literacy programs could be beneficial, to help adolescents understand how media influences behavior and perhaps to develop resistance to such influence.⁴¹

This study has several limitations which should be acknowledged. The study is cross-sectional and cannot address issues of cause-and-effect. The sample may not be representative of the entire Argentinean population, as schools were not randomly selected. However, schools were selected from three main cities where 37% of population lives and included schools whose students had a wide range economic diversity. The prevalence of tobacco alcohol and drug use in the sample is similar to the prevalence reported from national surveys carried out by the government, suggesting that the results may be broadly generalizable to urban Argentine populations. Because the primary focus of the survey used for this study was to assess the influence of tobacco and alcohol depictions in smoking and drinking by adolescents, we limited the number of survey questions used to assess parenting style and other aspects of parenting that could be related to movie restrictions and might not have been assessed. Finally, the questions about parenting style have not been validated in Argentinean population because they were used mainly in the U.S.; however, because the questions were tested for face validity by experts in tobacco research in Argentina, the internal consistency of the questions was acceptable (Table 1) and this question were used also in a Chilean study⁴² we consider that the validity of the questions is guaranteed.

Despite these limitations, this study confirms the protective association between M-RM during adolescence and multiple substance use outcomes, including illicit drugs. Our contribution to the knowledge of the nature of parental protective factors in adolescent smoking and drinking might be used for the development of interventions to prevent or delay adolescent substance use. Our results should be considered by pediatricians when discussing parental's role in preventing youth for tobacco, alcohol and substance use.

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References

1. Baumrind D. The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescent*. 1991; 11:56–95.
2. Laugesen M, Scragg R, Wellman RJ, DiFranza JR. R-rated film viewing and adolescent smoking. *Preventive medicine*. 2007; 45:454–459. [PubMed: 17707897]
3. Hanewinkel R, Morgenstern M, Tanski SE, Sargent JD. Longitudinal study of parental movie restriction on teen smoking and drinking in Germany. *Addiction*. Oct; 2008 103(10):1722–1730. [PubMed: 18821879]
4. Sargent JD. Effect of Parental R-Rated Movie Restriction on Adolescent Smoking Initiation: A Prospective Study. *Pediatrics*. 2004; 114:149–156. [PubMed: 15231921]
5. De Leeuw RNH, Sargent JD, Stoolmiller M, Scholte RHJ, Engels RCME, Tanski SE. Association of smoking onset with R-rated movie restrictions and adolescent sensation seeking. *Pediatrics*. 2011; 127:e96–e105. [PubMed: 21135004]
6. Kostermans E, Stoolmiller M, de Leeuw RN, Engels RC, Sargent JD. Exposure to Movie Reckless Driving in Early Adolescence Predicts Reckless, but Not Inattentive Driving. *PloS one*. 2014; 9(12):e113927. [PubMed: 25493323]
7. Sargent JD, Dalton MA, Heatherton T, Beach M. Modifying exposure to smoking depicted in movies: a novel approach to preventing adolescent smoking. *Archives of pediatrics & adolescent medicine*. Jul; 2003 157(7):643–648. [PubMed: 12860784]
8. Hull JG, Brunelle TJ, Prescott AT, Sargent JD. A longitudinal study of risk-glorifying video games and behavioral deviance. *Journal of personality and social psychology*. Aug; 2014 107(2):300–325. [PubMed: 25090130]
9. Nunez-Smith M, Wolf E, Huang HM, et al. Media exposure and tobacco, illicit drugs, and alcohol use among children and adolescents: a systematic review. *Substance abuse : official publication of the Association for Medical Education and Research in Substance Abuse*. Jul; 2010 31(3):174–192.
10. Hull JG, Draghici AM, Sargent JD. A Longitudinal Study of Risk-Glorifying Video Games and Reckless Driving. *Psychology of Popular Media Culture*. 2012; 1(4):244–253.
11. Sharif I, Wills TA, Sargent JD. Effect of visual media use on school performance: a prospective study. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine*. Jan; 2010 46(1):52–61. [PubMed: 20123258]
12. US Department of Health and Human Service. Preventing tobacco use among youth and young adults: a report of the surgeon general. Atlanta, GA: Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2012.
13. Hunt K, Henderson M, Wight D, Sargent JD. Exposure to smoking in films and own smoking among Scottish adolescents: a cross-sectional study. *Thorax*. Jul 15.2011
14. Sargent JD, Heatherton TF, Ahrens MB, Dalton MA, Tickle JJ, Beach ML. Adolescent exposure to extremely violent movies. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine*. Dec; 2002 31(6):449–454. [PubMed: 12457577]
15. Tanski SE, Cin SD, Stoolmiller M, Sargent JD. Parental R-rated movie restriction and early-onset alcohol use. *Journal of studies on alcohol and drugs*. May; 2010 71(3):452–459. [PubMed: 20409440]
16. Thrasher JF, Sargent JD, Vargas R, et al. Are movies with tobacco, alcohol, drugs, sex, and violence rated for youth? A comparison of rating systems in Argentina, Brazil, Mexico, and the United States. *The International journal on drug policy*. 2014; 25:267–275. [PubMed: 24316001]
17. Dal Cin S, Worth KA, Dalton MA, Sargent JD. Youth exposure to alcohol use and brand appearances in popular contemporary movies. *Addiction*. Dec; 2008 103(12):1925–1932. [PubMed: 18705684]

18. Thrasher JF, Jackson C, Arillo-Santillan E, Sargent JD. Exposure to smoking imagery in popular films and adolescent smoking in Mexico. *American journal of preventive medicine*. Aug; 2008 35(2):95–102. [PubMed: 18617078]
19. Alderete E, Kaplan CP, Gregorich SE, Mejia R, Perez-Stable EJ. Smoking behavior and ethnicity in Jujuy, Argentina: evidence from a low-income youth sample. *Substance use & misuse*. 2009; 44(5):632–646. [PubMed: 19360537]
20. SEDRONAR. Quinta Encuesta Nacional a Estudiantes de Enseñanza Media 2009. Informe Regional de Resultados. Bueno Aires Argentina: Secretaria de Programacion para la Prevención de la Drogadicción y la Lucha contra el Narcotráfico; 2012. <http://www.observatorio.gov.ar/investigaciones/Quinta%20Encuesta%20Nacional%20a%20Estudiantes%20de%20Ense%C3%B1anza%20Media%202011.pdf>
21. Costanzo PR, Woody EZ. Domain specific parenting styles and their impact on the child's development of particular deviance the example of obesity proneness. *Journal of Social & Clinical Psychology*. 1995; 1:425–445.
22. Hawkins JD, Graham JW, Maguin E, Abbott R, Hill KG, Catalano RF. Exploring the effects of age of alcohol use initiation and psychosocial risk factors on subsequent alcohol misuse. *Journal of studies on alcohol*. May; 1997 58(3):280–290. [PubMed: 9130220]
23. Jackson C. Initial and experimental stages of tobacco and alcohol use during late childhood: relation to peer, parent, and personal risk factors. *Addictive behaviors*. Sep-Oct;1997 22(5):685–698. [PubMed: 9347070]
24. Barnes GM, Reifman AS, Farrell MP, Dintcheff BA. The Effects of Parenting on the Development of Adolescent Alcohol Misuse: A Six-Wave Latent Growth Model. *J Marriage Fam*. 2000; 62(1):175–186.
25. White HR, Johnson V, Buyske S. Parental modeling and parenting behavior effects on offspring alcohol and cigarette use. A growth curve analysis. *J Subst Abuse*. 2000; 12(3):287–310. [PubMed: 11367605]
26. Beck KH, Boyle JR, Boekeloo BO. Parental monitoring and adolescent alcohol risk in a clinic population. *Am J Health Behav*. Mar-Apr;2003 27(2):108–115. [PubMed: 12639068]
27. Kodl MM, Mermelstein R. Beyond modeling: Parenting practices, parental smoking history, and adolescent cigarette smoking. *Addictive behaviors*. Jan; 2004 29(1):17–32. [PubMed: 14667418]
28. Cleveland MJ, Gibbons FX, Gerrard M, Pomery EA, Brody GH. The impact of parenting on risk cognitions and risk behavior: a study of mediation and moderation in a panel of african american adolescents. *Child Dev*. 2005; 76(4):900–916. [PubMed: 16026504]
29. Stephenson MT, Helme DW. Authoritative parenting and sensation seeking as predictors of adolescent cigarette and marijuana use. *J Drug Education*. 2006; 36(3):247–270.
30. Latendresse SJ, Rose RJ, Viken RJ, Pulkkinen L, Kaprio J, Dick DM. Parenting mechanisms in links between parents' and adolescents' alcohol use behaviors. *Alcohol Clin Exp Res*. Feb; 2008 32(2):322–330. [PubMed: 18162066]
31. Lamborn SD, Mounts NS, Steinberg L, Dornbusch SM. Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Dev*. Oct; 1991 62(5):1049–1065. [PubMed: 1756655]
32. Steinberg L, Elmen JD, Mounts NS. Authoritative parenting, psychosocial maturity, and academic success among adolescents. *Child Dev*. Dec; 1989 60(6):1424–1436. [PubMed: 2612251]
33. Jackson C, Henriksen L, Foshee VA. The Authoritative Parenting Index: predicting health risk behaviors among children and adolescents. *Health education & behavior : the official publication of the Society for Public Health Education*. Jun; 1998 25(3):319–337. [PubMed: 9615242]
34. Sargent JD, Tanski S, Stoolmiller M, Hanewinkel R. Using sensation seeking to target adolescents for substance use interventions. *Addiction*. Mar; 2010 105(3):506–514. [PubMed: 20402995]
35. Stoolmiller M, Wills TA, McClure AC, et al. Comparing media and family predictors of alcohol use: a cohort study of US adolescents. *BMJ open*. 2012; 2:e000543.
36. Van Buuren S. Multiple imputation of discrete and continuous data by fully conditional specification. *Statistical methods in medical research*. 2007; 16(3):219–242. [PubMed: 17621469]

37. Dalton MA, Adachi-Mejia AM, Longacre MR, et al. Parental rules and monitoring of children's movie viewing associated with children's risk for smoking and drinking. *Pediatrics*. 2006; 118:1932–1942. [PubMed: 17079564]
38. Stoolmiller M, Gerrard M, Sargent JD, Worth K, Gibbons FX. R-rated Movie Viewing, Growth in Sensation Seeking and alcohol initiation: Reciprocal and Moderation Effects. *Prev Sci*. 2010; 11:1–13. [PubMed: 19655251]
39. Centers for Disease Control and Prevention. [Accessed November 6th, 2015] School Health Policies and Practices Study. 2014. http://www.cdc.gov/healthyouth/data/shpps/pdf/2014factsheets/2014_overview_fact_sheet.pdf
40. Wiehe SE, Garrison MM, Christakis DA, Ebel BE, Rivara FP. A systematic review of school-based smoking prevention trials with long-term follow-up. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine*. Mar; 2005 36(3):162–169. [PubMed: 15737770]
41. Salgado MV, Pérez-Stable EJ, Primack B, et al. Association of Media Literacy with Cigarette Smoking among Indigenous Youth in Argentina. *Nicotine & Tobacco Research*. Epub 2011/12/24. 10.1093/ntr/ntr240
42. Lorenzo-Blanco EI, Bares C, Delva J. Correlates of Chilean adolescents' negative attitudes toward cigarettes: the role of gender, peer, parental, and environmental factors. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. Feb; 2012 14(2): 142–152. [PubMed: 22157230]

What's New

This study suggests a protective association between parental M-RM restriction during adolescence and substance use in Latin American. These data extend the knowledge of M-RM to South American youth and support the role of media-specific parenting to prevent substance use.

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Figure 1.

Unadjusted relationship between restriction of mature-rated media and substance use
 Percentage of students who were smoke, drink or use illicit drugs according the restrictions
 a) rules about what they can see or do online; b) rules about what videogames they can play;
 c) rules about what TV programs they can see; and d) How often they are allowed to watch
 movies or DVD qualified as recommended for over 16 or 18 years
 $p < 0.001$ for all comparison (chi square test)

Table 1

Characteristics of the participants

Variable	Total n = 3172 n (%)
Gender	
Women	1335 (42.4)
Age (years)	
12	1341 (42.3)
13–14	1626 (51.3)
15	202 (6.4)
Parental education	
7 years	214 (7.7)
8–12 years	1289 (46.1)
12 years	1292 (46.2)
Other socioeconomic indicators	
Attends private school	1013 (31.9)
Attends public school	2159 (68.1)
Has been retained in school	767 (24.4)
Has a job	251 (8.0)
Sensation seeking mean (SD)	
	1735 (55.6)
Parental mature-rated media restriction	
Internet rules	1602 (52.2)
Videogames rules	762 (24.5)
TV rules	1351 (43.3)
Allowed to watch adult movies	
Never	1055 (33.3)
Sometimes	1325 (41.8)
Often	368 (11.6)
Very Often	379 (12.0)

Variable	Total n = 3172 n (%)
Media restrictions index	
No rules (0)	900 (28.8)
1 rule (0.25)	769 (24.6)
2 rules (0.50)	659 (21.1)
3 rules (0.75)	535 (17.1)
4 rules (1.0)	267 (8.5)
Media Access	
Access to internet in bedroom	2564 (82.4)
Has cellular phone	2661 (84.9)
Has TV in bedroom	2705 (86.2)
Has DVD in room	1672 (53.6)
Has a personal computer	2210 (70.8)
Has a tablet	1016 (32.6)
Media access index (0–1), mean (SD)	0.67 (0.34)
Parenting style ^I (1–5)	
Mother	
Responsiveness, mean (SD)	4.22 (0.88)
Demandingness, mean (SD)	4.08 (0.91)
Father	
Responsiveness, mean (SD)	3.91 (1.08)
Demandingness, mean (SD)	3.66 (1.18)
Tobacco use and peer/household exposure	
Current (30 day) smoker	314 (10.0)
Best friends smoke	1350 (42.8)
Household smokers	1751 (55.6)
Alcohol use and peer exposure	
Current (30 day) drinker	1017 (32.3)
Ever binge drank	540 (17.2)

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Variable	Total n = 3172 n (%)
Best friends drink	934 (29.6)
Illicit drug use	
Lifetime marijuana or cocaine	258(8.2)

✓ Mother Responsiveness, alpha= 0.82 Demandingness, = 0.70
Father Responsiveness, = 0.89 Demandingness, = 0.92

Table 2
Pearson correlation coefficients between parenting styles, parental restriction and media access scales

Variables ¹	Mother responsiveness	Mother demandingness	Father responsiveness	Father demandingness	Rules index	Media access index
Mother responsiveness	1					
Mother demandingness	0.49**	1				
Father responsiveness	0.36**	0.26**	1			
Father demandingness	0.28**	0.49**	0.62**	1		
Rules index	0.21**	0.30**	0.15**	0.26**	1	
Media access index	-0.01	-0.08**	0.01	-0.05*	-0.13**	1

¹ ** p<0.001, * p<0.01

Table 3

Adjusted associations between media parenting and four substance use outcomes.

Media management variable	Current (30d) Smoker Adjusted* OR (95% CI)		Current (30d) Drinker Adjusted* OR (95% CI)		Binge Drank Adjusted* OR (95% CI)		Any Drug Use Adjusted* OR (95% CI)	
	Separately	Indexed	Separately	Indexed	Separately	Indexed	Separately	Indexed
Internet rules	0.61 (0.43–0.87)		0.76 (0.62–0.94)		0.65 (0.49–0.86)		0.77 (0.53–1.11)	
Videogame rules	0.73 (0.47–1.14)		0.90 (0.71–1.14)		0.84 (0.59–1.18)		0.99 (0.64–1.55)	
TV program rules	0.68 (0.47–0.99)		0.86 (0.69–1.07)		0.54 (0.4–0.73)		0.88 (0.59–1.3)	
Adult movie rules	0.54 (0.36–0.81)		0.62 (0.5–0.78)		0.69 (0.5–0.94)		0.49 (0.31–0.76)	
All 4 rules combined**		0.32 (0.18–0.59)		0.53 (0.38–0.75)		0.36 (0.22–0.59)		0.49 (0.26–0.92)
n	2438		2447		2442		2464	

* All models adjust for age, sex, parent education, work status, sensation seeking, parenting style (mother and father), and media access. Smoker model adjusts also for parent & peer smoking. Drinker models adjust for peer alcohol use.

** The combined index treats each individual factor equally as a contributor of 0.25 to a total possible score of 1.0. Thus, the odds ratio for the combined score models the independent association for fully implementing rules in all areas.