Author's response to reviews

Title: Television viewing through ages 2-5 years and bullying involvement in early elementary school

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Author's response to reviews: see over
Reviewer #1:

Title: Television viewing through ages 2-5 years and bullying involvement in early elementary school.
Reviewer: Hung-Wen Yeh

The authors examine the associations between TV exposure and “independent” covariates (I would call them “individual” but not “independent” covariates because they may correlate to each), and seem to control covariates if their associations are significant. This approach may not be optimal because weak associations can be significant due to the large sample size. A better way is to control covariates that dramatically alter the effects of TV exposure on bully/victim (say, > 10% change in regression coefficients) if they are added into the model compared to the model if they are not added. However, controlling more covariates than necessary doesn’t harm as long as they don’t raise a red flag of collinearity.

For the issue of collinearity, the authors report Pearson’s correlation between continuous variables but omit the associates with/between categorical covariates, which can be evaluated by differences in means across categories or odds ratios. However, these pairwise associations do not take into account the associations with the other covariates that are also controlled in the adjusted models. A better and more direct assessment is to use a measure known as variance inflation factor, which can be calculated for dummy variables of categorical characteristics so they are not left out.

Response of the authors: Thank you for reviewing our manuscript and for offering the helpful suggestions. The reviewer has offered the following suggestions:

1. To use a more appropriate terminology in reference to control variables;
2. To apply a more suitable approach to selection of the control variables;
3. To use a more optimal method of examining the issue of collinearity.

Our response to each of these suggestions is presented below.

1. We agree with the reviewer that naming the covariates “independent” is less appropriate and we agree that it is more suitable to refer to them as “individual” covariates. We have adapted this in the manuscript (please see page 13):

   “Examination of the correlation coefficients for particularly strong correlations between the individual covariates (i.e. above .80) that could lead to collinearity problems during estimation of regression coefficients, showed no indication for a concern.”

2. We agree with the reviewer that a better approach to selecting control covariates is by way of examining whether they alter the effect of TV exposure on bullying. We followed this approach when selecting the control variables in our analyses, along with considering the conceptual role of these factors. Some of the selected control variables substantially altered the association resulting in even a stronger change in
effect estimates than the 10% rule of thumb (e.g. maternal educational level, child ethnicity or household income). Inclusion of few other factors (e.g. age, gender, maternal psychopathology and parenting stress) resulted in a less strong change of the effect estimates, however all the variables were used as control variables based on their conceptual importance and even small confounding influence. As the reviewer mentions, controlling for such a variety of factors does not harm as long as there is no collinearity problem. This was examined using the collinearity diagnostic VIF as described in the response to the next comment of the reviewer (please see below in our response to point 3). We thank the reviewer for this suggestion and agree that this information should be clearly mentioned in the manuscript. We have adapted the methods section of the manuscript accordingly (please see page 10):

“We considered the conceptual relevance of these potential confounders and examined whether inclusion of these variables in a model resulted in a change of the effect estimate of television viewing on bullying involvement. Inclusion of the covariates resulted in a 5-10% change of the effect (inclusion of some resulted in a substantially larger change than 10%, e.g. maternal educational level, child ethnicity or household income). Although inclusion of few variables (namely, child age, gender, maternal depression symptoms, and parenting stress) led to a relatively small change of the effect estimates, all the variables were treated as potential confounders based on their conceptual relevance, and also, because in our data these covariates were associated with both children’s television exposure and with bullying involvement.”

3. We thank the reviewer for suggesting to use a more sophisticated assessment of possible collinearity problems – the variance inflation factor (VIF). We have followed this approach and estimated the VIF to detect possible collinearity problems. We used the collinearity diagnostics statistic –mivif–, available in STATA, to estimate the VIF for all the control variables. These additional analyses showed no worrisome results as the mean VIF was 1.42 and the VIFs for all the individual covariates ranged between 1.01 and 1.93. Typically, a value of VIF >10 indicates possible collinearity problems (Steyerberg, 2009). Based on these additional diagnostic analyses, we may conclude that there is no problem of collinearity. We have adapted the methods section of the manuscript by describing these extra analysis and the obtained results on page 13:

“Additional collinearity diagnostic analyses – calculating the variance inflation factor (VIF) values for the control variables showed that collinearity was not a problem in our data (mean VIF=1.42, VIF values for individual covariates ranged from 1.01 to 1.93; against the value of VIF>10 indicating possible collinearity problems).”

Reference

Reviewer #2

Title: Television viewing through ages 2-5 years and bullying involvement in early elementary school.
Reviewer: Sarit Steinmetz

1. p. 3 authors write: “Bullying involvement is associated with poor emotional and physical health [4], psychosocial adjustment problems [5], psychotic symptoms [6], depression, anxiety, and self-harm behaviors [7].” Some clarification is needed regarding which outcome is associated with which role of bullying (victim, bully, bully-victim) although this does come later – here it is confusing… Authors could possibly reference the statement they wrote later “Bullying involvement is associated with children’s behavioral and emotional problems” here and then avoid repetitiveness and confusion.

Response of the authors: Thank you for this suggestion. We agree that it was confusing and that referencing the general statement earlier in the text helps avoid confusion and repetitiveness. We have followed the suggestion of the reviewer and adapted this in the manuscript (please see the first paragraph of the background section on page 3).

2. p. 4 bottom, “Alongside the studies that examined the effects of the violent content, some studies demonstrated the negative effects of time of TV exposure on aggression [22, 23]” – clearly state that this is regardless of content (i.e. violent or not) if indeed this is the case. Also at the end of the paragraph on page 5, where you state “Following this view, a possible consequence of extensive TV exposure at young age could include poor social skills and problems with peers”, as this is part of the rationale for your study.

Response of the authors: Thank you for this suggestion. We agree that this sentence needs to be clarified as it may be confusing to a reader, and it may seem that we imply that the effects in these studies were independent of the content watched while that may be not the case. The difficulty lies in that most studies focus either on the effects of the time of viewing or on the content of exposure, however these are rarely examined simultaneously or controlled for one another; thus the effects of the time of exposure that are reported in most of the studies may not necessarily be independent of the content of the exposure. To avoid any confusion we have reformulated the sentence as following:

“Some studies demonstrated the negative effects of the time of TV exposure on behavior [1-3]”

Also, in the second sentence we now emphasize the role of the exposure time:

“Following this view, a possible consequence of excessive TV exposure time at young age could include poor social skills and problems with peers.”

3. p. 5 line 10 “depraved” – does this word not corrupt, deviant, perverted? I am not sure it is the best fit here.

Response of the authors: Thank you for this suggestion.
Response of the authors: Thank you for noticing this and for bringing this to our attention. It was a spelling error, we were meant to write “deprived”. We have corrected this in the text.

4. p. 5 I think editing will clarify why your study is important: “However, more large population-based studies are needed to ascertain the association between preschool television viewing and bullying involvement in early elementary school, by using Replication studies should use multiple assessments of exposure throughout early childhood and carefully address the issue of possible confounding.”

Response of the authors: This is a very helpful suggestion, thank you. We have adapted this sentence:

“However, the association between preschool television viewing and bullying involvement in early elementary school needs to be ascertained in other large population-based studies using multiple assessments of exposure throughout early childhood and carefully examine the issue of possible confounding.”

5. Major strengths of the current study are repeated assessments capture the patterns of the exposure over time, and multiple reporters including peers.

Response of the authors: Thank you for highlighting the strengths of our study. We have added the following to the discussion section:

“This study’s major strengths are the use of multiple reporters and repeated assessments of the exposure at preschool age”.

6. p. 5 lines 10-11 from bottom: “Other variables, such as behavioral or emotional problems could confound the association between television viewing and bullying”. You found that it is also other variables, such as maternal age, educational level, family income, child gender, and national origin. Say something about demographic variables as well already here…you even wrote in the methods (p. 10) “Several socio-demographic and psychosocial covariates that may confound the association between television viewing and consequent bullying problems were selected based on previous studies of television exposure in young children [25, 26].” Maybe it would be better placed here.

Response of the authors: Thank you for this suggestion. We agree that placing this sentence earlier in the text makes the statement clearer. We have adapted this in the text of the manuscript.

“Several socio-demographic and psychosocial covariates that may confound the association between television viewing and consequent bullying problems were selected based on previous studies of television exposure in young children [3-5]. Importantly, behavioral and emotional problems should be considered as possible confounding factors of the association between television viewing and bullying, as studies show that early
television exposure is associated with behavioral problems [6, 7], and that children’s internalizing and externalizing problems are associated with bullying involvement [8].

7. p. 8: “While our analyses are primarily focused on examining the effects of the time of the TV exposure, we acknowledge the importance of viewing violent content in development of aggression”. This reads like a response to the reviewer, not part of the text. Maybe saying on the top of page 7, before the methods begin something like “following Bandura and others’ work reviewed above, we also examined the effects of watching violent content on TV at age 5 on…”

Response of the authors: We agree that this sentence needs to be reformulated, thank you. We have followed your suggestion and adapted the text.

“Our main analyses are focused on examining the effects of the time of TV exposure. In addition, following the above reviewed work of Bandura and others, we also examined the effects of exposure to violent television content on children’s bullying involvement.”

8. bottom of p. 15 – top of p. 16: “The results of these analyses showed no increased risks of bullying involvement among the exposed and unexposed to violent content children, except for the group of bullies (see Supplementary Table 3). Children exposed to violent content at age 5 years were more likely to be bullies (OR=1.27, 95% CI: 1.02-1.58).” It is not clear from the sentence what the results are… do you mean to say “The results of these analyses showed no increased risks of bullying involvement among the children exposed to violent content compared to children not exposed to violent content”? and if so, the next sentence seems to be contradictory… these few sentences need fixing.

Response of the authors: We agree that this description of these results was confusing. The effect was observed only in the group of bullies (and not in the groups of victims and bully-victims). We have made this information more clear and adapted these sentences.

“The results of these analyses showed that children exposed to violent content on TV at age 5 years had an increased risk of being bullies (OR=1.27, 95% CI: 1.02-1.58) in early elementary school (see Supplementary Table 3).”

9. This becomes even more confusing when in the discussion you say (p. 18): “In our study, children’s exposure to violent TV/video content was associated with the risk of being a bully (but not with the risk of being a victim or a bully-victim). This finding supports the content-based theories that suggest an impact of observing violence on children’s aggressive behavior [24, 43].” So violent TV watching is a risk factor for bullying, not victimization or bully-victimization?

Response of the authors: The effect was indeed observed only in the group of bullies. We agree that this may be confusing. On one hand, this effect could be a chance finding (since it is observed only in the group of bullies). On the other hand, it may be a genuine effect because observational learning from the violence that is observed on TV is more likely to make children aggressive rather than victimized. However, we are still unsure as
to why we did not observe an effect in the group of bully-victims, especially since these children are considered to be the most aggressive group of those involved in bullying. Perhaps observing violence has less effect on reactive aggression – the primary characteristic of bully-victims, than it has on proactive aggression, which is the primary characteristic of bullies. Finally, the effect was observed only in the teacher-reported data, which may again suggest that this is only a chance finding. We agree that this information may be confusing to a reader, thus we have adapted our discussion of this finding in the manuscript:

“In our study, children’s exposure to violent TV/video content at age 5 years was associated with the risk of being a bully, but not with the risk of being a victim or a bully-victim. Several possible explanations of this finding should be considered. Observing the effect of TV/video violence exposure only in the group of bullies and only in the teacher-reported data (i.e. not in the peer-reported data) may suggest that this is a chance finding. On the other hand, the content-based theories suggest that children learn from observing violence, which is thought to effect children’s aggressive behavior [9, 10]. Following this approach, exposure to violent content may trigger the aggressive behavior of bullies. Possibly, observing this effect in the group of bullies, but not in the group of bully-victims could be due to different effects of violent content on proactive vs reactive aggression. We may speculate that the exposure to violence has a stronger effect on proactive aggression of bullies rather than on reactive aggression of bully-victims. Yet, this interpretation is speculative. Finally, due to the cross-sectional nature of this specific analysis, we cannot infer on direction of the association: although it is plausible that viewing of violent content leads to bullying behavior, it is also possible that aggressive children who are involved in bullying at school have a stronger preference for viewing violent TV/video programs [11, 12].”


Response of the authors: Thank you for this helpful suggestion. We now use this citation.

11. p. 19 and elsewhere – you found that maternal age, education, income appear to be the underlying factors associated with both children’s excessive television exposure and bullying involvement. What explanation do you have for this finding? The discussion lacks a clear in-depth discussion of the meaning of these findings. It would be even better if after such an in-depth discussion you would talk of the implication of these findings for prevention and intervention.

Response of the authors: We agree that this finding deserves more discussion. We have added the following to the discussion section of the manuscript:
“Maternal socio-demographic characteristics (i.e. maternal age, education, income, marital status) appear to be the underlying factors associated with both children’s excessive television exposure and bullying involvement.

The relation between these maternal socio-demographic characteristics and child behavior – i.e. an excessive television viewing, bullying involvement – has been reported in earlier studies [13-15]. A young age, single parenthood and low socio-economic background are associated with negative outcomes in child development. These socio-demographic characteristics, such as for example parental educational level, reflect various resources and skills, including intellect, literacy, problem-solving skills, and norms and values of a parent [16, 17], that can influence children’s social development and behavior through parental rearing practices. Similarly, single parenthood may negatively affect the upbringing practices and parent-child interactions through its inherent stress and reduced parental control over child’s behavior [13]. Importantly, having understood the role of these socio-demographic characteristics, they can be used as indicators in identifying the vulnerable groups of children at risk of behavioral problems. These vulnerable groups can then be targeted by intervention programs aimed at prevention of excessive media use and bullying involvement.”

12. p. 20 conclusion paragraph: the word “reject” is inappropriate... although there are 3rd variables confounded, much more caution needs to be taken as to the meaning of your findings.

Response of the authors: We agree that our conclusion was formulated very profoundly. We have therefore rephrased this sentence:

“In summary, our findings demonstrate that a child’s risk of bullying involvement in early elementary school that is associated with preschool television exposure is largely explained by confounding factors – primarily maternal socio-demographic characteristics.”

Should the authors agree to undertake the revisions required, I will be happy to review the new version.

General response of the authors:

We would like to thank the reviewer for the multiple reading of our manuscript and for all the helpful suggestions, which yet again have helped us enhance the quality of this manuscript. Thank you!

References


