


Monkey See, Monkey Do, Monkey Hurt: Longitudinal Effects of Exposure to Violence on Children's Aggressive Behavior

Social Psychological and
Personality Science
2(4) 432-437
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DOI: 10.1177/1948550610396586
http://spps.sagepub.com


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Abstract

Children witness violence at home, at school, in their neighborhood, and in the media. Children may also experience violence, as a victim, at home, at school, and in their neighborhood. A longitudinal study tested whether children who are exposed to a heavy dose of violence come to regard it as normal behavior and subsequently behave more aggressively themselves. Participants were 777 children (8 to 12 years old) who completed questionnaires twice (6 months apart) about exposure to violence (witnessed and experienced), their own aggression, the aggression of peers, and normative beliefs about aggression. The results showed that witnessing violence predicted increases in aggression 6 months later through changes in normative beliefs. Likewise, experiencing aggression as a victim predicted increases in aggression 6 months later through changes in normative beliefs. These findings show that when children think violence is commonplace in many contexts, they are more likely to aggress against others.

Keywords

aggression, children, normative beliefs, witnessing violence, victimization

In Esphyr Slobodkyna's famous children's story *Caps for Sale*, a cap peddler, who wears his entire stock of 17 caps on his head, strolls through villages calling, "Caps! Caps for sale! Fifty cents a cap!" One day, the peddler sits down under a tree to take a nap, with all the caps still on his head. When he wakes up, all the caps but his own are gone—stolen by a troop of monkeys. He gets angry at the monkeys. But the monkeys only imitate the man's anger. When the man yells at them, they yell back. When he scolds them, they scold back. Monkey see, monkey do. At the end of the story, the peddler walks away in anger and throws his own cap on the ground. The monkeys do the same. He quickly gathers the caps, stacks them back on his head, and walks through a village calling, "Caps! Caps for sale! Fifty cents a cap!"

Whereas the monkeys in this innocent story are exposed to the anger of a peddler, children in our not-so-innocent society are frequently exposed to aggression and violence. Whether it is on the television screen, on the school ground, in the neighborhood, or even at home, aggression and violence seem to be everywhere (Finkelhor, Ormrod, Turner, & Hamby, 2005; Guerra, Huesmann, & Spindler, 2003; Wilson, Smith Stover, & Berkowitz, 2009).

Exposure to violence can be either direct, when children are victims of violence, or indirect, when children witness violence against others (Buka, Stichick, Birdthistle, & Earls, 2001).

These two kinds of exposure to violence often co-occur (Cox, Kotch, & Everson, 2003; Osofsky, 2003). Children who witness a lot of violence also tend to experience it themselves, such as in schools where they can both witness violence directed against other children and experience violence as a victim (e.g., Nishina & Juvonen, 2005).

Children exposed to a lot of violence might come to believe that it is an acceptable way to solve conflicts with others or an effective means to get what they want. Prior work has shown that believing that the use of aggression is acceptable predicts later aggressive behavior (Calvete, 2008; Huesmann & Guerra, 1997). In this study, we test whether normative aggression beliefs influence the link between exposure to violence and

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Table 1. Correlations Among Study Variables and Cronbach's Alpha

	1	2	3	4	5	6	7	8	9	10	11	Cronbach's α
1. Witnessing violence at school	1											.67
2. Witnessing violence in the neighborhood	.44*	1										.75
3. Witnessing violence at home	.23*	.22*	1									.67
4. Witnessing violence on TV	.37*	.42*	.17*	1								.74
5. Victimization at school	.50*	.28*	.26*	.21*	1							.74
6. Victimization in the neighborhood	.28*	.57*	.28*	.24*	.41*	1						.73
7. Victimization at home	.18*	.14*	.68*	.18*	.18*	.18*	1					.74
8. Aggression T1	.17*	.24*	.10*	.22*	.22*	.18*	.13*	1				.91
9. Aggression T2	.13*	.19*	.10*	.17*	.18*	.13*	.13*	.81*	1			.90
10. Normative aggression beliefs T1	.30*	.35*	.27*	.32*	.26*	.29*	.22*	.33*	.23*	1		.80
11. Normative aggression beliefs T2	.15*	.20*	.19*	.21*	.15*	.18*	.15*	.25*	.27*	.51*	1	.76
<i>M</i>	10.66	7.91	5.09	11.63	7.68	5.35	5.19	1.91	1.77	17.77	16.76	
<i>SD</i>	2.31	2.92	2.90	2.75	2.52	2.32	3.34	1.41	1.29	6.77	5.67	

* $p < .001$.

future aggression. No previous research has tested the mediating role of normative aggression beliefs on the link between exposure to violence across several contexts (home, school, neighborhood, TV) and for different types of exposure (i.e., as a victim, as a witness). The present research fills this important gap in the literature.

Study Overview

The present study tested the hypothesis that experiencing violence as a victim, and witnessing violence perpetrated against others, predicts increases aggression in children. We also tested the role of normative aggression beliefs as a possible explanation for why exposure to violence may increase later aggression. We propose that individuals exposed to a heavy diet of violence come to believe that aggression is a normal way to solve conflict and get what you want in life. When aggression is viewed as normal behavior, inhibitions against behaving aggressively are reduced. These hypotheses were tested in a 6-month longitudinal study involving a large sample of children 8 to 12 years old. This age group was selected because exposure to violence increases in elementary-school-age children (Finkelhor et al., 2005). Moreover, it is important to examine the developmental mechanisms that predispose children to behave aggressively in relatively early stages of development before their aggressive behavior becomes more crystallized and resistant to change (e.g., Huesmann, Dubow, & Boxer, 2009; Olweus, 1979).

Method

Participants

Participants were 777 children (52.9% boys), 8 to 12 years old ($M_{\text{age}} = 9.9$ years, $SD_{\text{age}} = 1.0$), from seven different schools (58.8% private) in Bizkaia, Spain. The schools were selected randomly by means of a cluster sampling procedure. All children were Caucasians. Using their parents' last job as a criterion (Arias Álvarez, 2004), the percentage of children in low,

medium-low, medium, medium-high, and high class families were 5.9%, 21.9%, 34.8%, 30.9%, and 6.6%, respectively. The results were similar for boys and girls, for children from public and private schools, and for children from different social classes, so we will not discuss these variables further. Parental consent was 99.6%. The retention rate over the 6-month study was 96%.

Procedure

Participants completed measures of exposure to violence, normative aggression beliefs, and aggression at baseline (Time 1 or T1) and 6 months later (Time 2 or T2). Exposure to violence was assessed using the 21-item Exposure to Violence Scale (Orue & Calvete, 2010), which measures directly experiencing acts of violence as the victim (i.e., victimization) and watching others experience acts of violence (i.e., witnessing). *Victimization* was assessed in the contexts of school, neighborhood, and home (e.g., "How often has somebody hit you at home?"). *Witnessing* violence was assessed in the contexts of school, neighborhood, home, and TV (e.g., "How often have you seen somebody hitting another person at school?"). Each item was rated on a 5-point scale (1 = *never* to 5 = *every day*). Cronbach α coefficients were satisfactory (see Table 1). Confirmatory factor analysis supported a hierarchical structure in which seven first-order categories of exposure to violence (e.g., victimization at school, witnessing at school, victimization at home, witnessing at home, victimization in neighborhood, witnessing in neighborhood, witnessing on TV) were encompassed by four higher-order categories of exposure to violence (i.e., exposure at school, in the neighborhood, at home, and on TV). Goodness-of-fit index values were excellent in past studies (Orue & Calvete, 2010) and in the present study.

Normative beliefs about the use of aggression were assessed by means of the nine-item (e.g., "Sometimes you have to hit others because they deserve it") Justification of Violence subscale of the Irrational Beliefs Scale for Adolescents (Calvete & Cardenoso, 2005). Each item is rated on a 4-point scale (1 = *not at all true* to 4 = *completely true*). Previous research has

shown that this subscale is associated with aggressive behavior (Calvete, 2008).

Aggression was measured using both peer- and self-reports. The peer-nominated aggression measure contained eight items, four that assessed physical aggression (e.g., hitting others) and four that assessed relational aggression (e.g., spreading rumors about others). Children named up to three classmates who behaved in the described manner (Crick, 1996; Crick & Grotpeter, 1995). The number of nominations that children received from their classmates was standardized and summed separately for physical and relational aggression. Self-reported aggression was assessed using the 23-item Reactive-Proactive Aggression Questionnaire (Raine et al., 2006). Of the 23 items, 11 measure reactive aggression (e.g., "How often have you yelled at others when they have annoyed you?") and 12 measure proactive aggression (e.g., "How often have you had fights with others to show who was on top?"). Each item is rated on a 3-point scale (0 = *never*, 1 = *sometimes*, 2 = *often*). The various measures of aggression were highly correlated at both time periods (r s ranged from .50 to .86), so they were combined to form more reliable measures of self- and peer-reported aggression. These findings are consistent with meta-analytic work showing that different measures of aggression often load on a single factor (Carlson, Marcus-Newhall, & Miller, 1989).

Results

Data Analysis Procedures

Structural equation models, using maximum likelihood estimator with robust standard errors (MLR estimator), were tested using Mplus 4.0 (Muthén & Muthén, 1998-2006). Because students were nested within schools, we computed standard errors and chi-square tests of model fit taking into account the non-independence of data using the Type = Complex option in Mplus. Goodness of fit was assessed by the comparative fit index (CFI), the nonnormed fit index (NNFI), and the root mean squared error of approximation (RMSEA). NNFI and CFI values of .95 or above indicate very good model fit. RMSEA values below .05 indicate very good fit, whereas values between .05 and .08 indicate good fit (Byrne, 1998).

We estimated two models, one examining the link between witnessing violence and aggression and one examining the link between experiencing violence as a victim and aggression. Both models included normative beliefs about aggression as a potential mediating variable. Correlations among variables are in Table 1. The mediation effects were tested by comparing the fit of a model in which all paths were freely estimated to a model in which the specific indirect effect of normative beliefs was fixed to zero. Significant mediation is found when the model in which the indirect path is fixed to zero has a significantly worse fit than the freely estimated model, as indicated by a drop in CFI of .002 or more (Meade, Johnson, & Braddy, 2008). We also tested whether the mediation was full or partial by comparing a model in which all paths were freely estimated

to a model in which the specific direct effect of exposure to violence to T2 aggression was fixed to zero. A lack of change in model fit between these models indicates full mediation, whereas an impaired fit for the model with the fixed direct path (i.e., $\Delta CFI \geq .002$) indicates partial mediation. Finally, to establish the specificity of the proposed direction of effects, we tested reverse directional models in which exposure to violence predicts normative beliefs through changes in aggression.

Mediating Effects of Normative Beliefs on the Link Between Witnessed Violence and Subsequent Aggression

First, we tested the mediating effect of normative aggression beliefs on the relationship between witnessed violence and subsequent aggression. For the "witnessing violence" latent variable, we used four indicators: witnessed violence at school, in the neighborhood, at home, and on TV. For the "aggression" latent variable, we used two indicators: peer- and self-reported aggression. The model included witnessing violence at T1, normative beliefs at T1 and T2, and aggression at T1 and T2. Thus, the model contained five latent variables. Indirect paths consisted of mediation through normative beliefs. The model fit indices were very good, $\chi^2(68, N = 776) = 199.83$, RMSEA = .050, NNFI = .95, CFI = .97. Figure 1 shows that T1 witnessing violence is linked to T2 aggression both directly and indirectly via T2 normative aggression beliefs. The effects of witnessing violence on aggression via normative aggressive beliefs was significant ($\beta_{ind} = .21, p < .001$). The model in which the indirect path was fixed to zero impaired the fit of the model ($\Delta CFI = .065$), indicating that normative beliefs significantly mediated the relationship between witnessing violence and aggression 6 months later. The mediation was partial, as the model fit decreased when the direct path was fixed to zero ($\Delta CFI = .009$). The fit indices for the reverse directional model were good, $\chi^2(68, N = 776) = 227.96$, RMSEA = 0.055, NNFI = 0.94, CFI = .96, but significantly worse than for the hypothesized model ($\Delta CFI = .008$).

Mediating Effects of Normative Beliefs on the Link Between Experienced Violence and Subsequent Aggression

Next, we tested the mediating effect of normative aggression beliefs on the relationship between victimization and subsequent aggression. For the "victimization" latent variable, we used three indicators: victimization at school, in the neighborhood, and at home. For the "aggression" latent variable, we used two indicators: peer- and self-reported aggression. The model contained five latent variables: victimization at T1 and, again, normative beliefs at T1 and T2, and aggression at T1 and T2. The model fit indices were very good, $\chi^2(56, N = 776) = 168.11$, RMSEA = .051, NNFI = .96, CFI = .97. Figure 2 shows that T1 victimization is linked to T2 aggression both directly and via T2 normative aggression beliefs. The effects of victimization on aggression via normative aggressive beliefs was significant ($\beta_{ind} = .17, p < .001$). The mediation effect was significant: Model fit

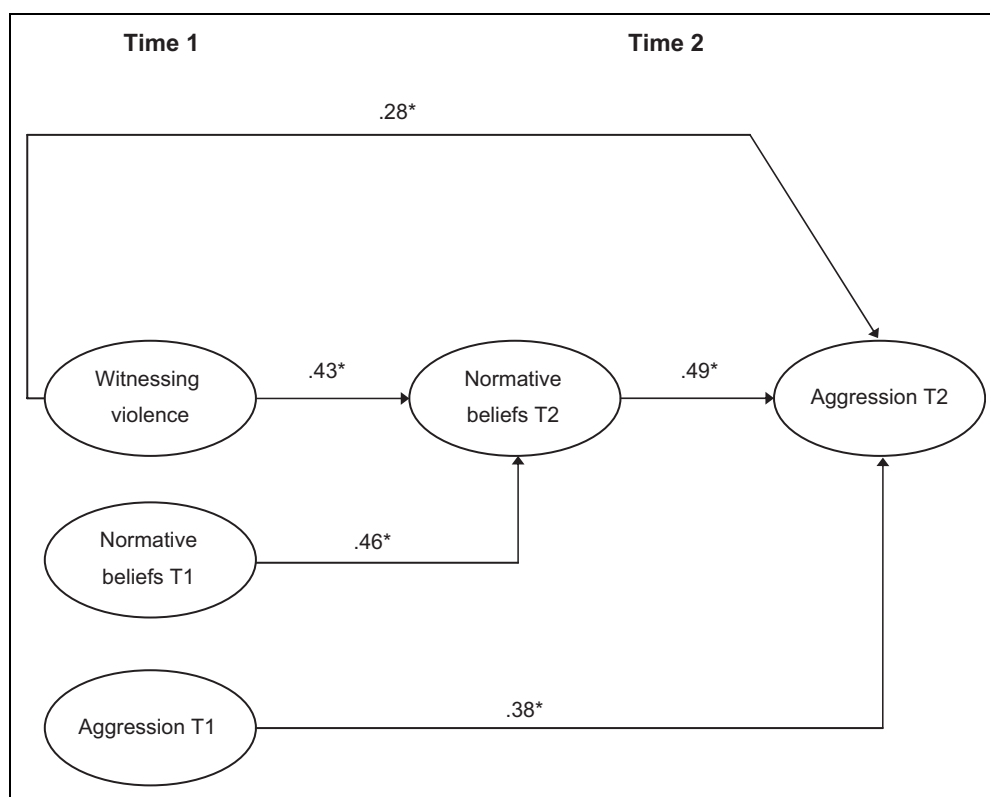


Figure 1. Indirect effect of normative aggression beliefs on the link between witnessing violence and aggression 6 months later
^{*} $p < .001$.

was impaired when the indirect paths were fixed to zero ($\Delta CFI = .067$). The mediation was partial, as the model fit decreased when the direct path was fixed to zero ($\Delta CFI = .011$). The fit indices for the reverse directional model were good, $\chi^2(56, N = 776) = 201.24$, RMSEA = 0.058, NNFI = 0.96, CFI = .94, but significantly worse than for the hypothesized model ($\Delta CFI = .009$).

Discussion

The findings from our longitudinal study show that exposure to violence can increase aggression in children 6 months later. A major strength of this research is that we examined the effects of witnessing violence and victimization in multiple contexts. Witnessing violence at school, in the neighborhood, at home, and on TV predicted later aggression. Similarly, victimization at school, in the neighborhood, and at home predicted later aggression in children. These findings support a “downward spiral” of aggression (Slater, Henry, Swaim, & Anderson, 2003), where the victims of aggression can later become the perpetrators. The context of exposure did not seem to matter much. Exposure to violence, whether as a witness or a victim, increased subsequent aggression, regardless of where the exposure occurred.

Our general pattern of findings is consistent with the results of a recent meta-analysis linking exposure to violence with

aggression (Wilson et al., 2009). Importantly, our results extend these meta-analytic results by showing *why* exposure to violence increases later aggression. Normative beliefs about aggression play a key mediating role in the link between exposure to violence and aggression. Children who think aggression is a normal behavior are more likely to use it themselves, perhaps as a means to solve conflict or to get what they want.

Limitations and Future Research

All studies have limitations, and ours is no exception. One limitation is that the present study had two rather than three time points (Cole & Maxwell, 2003). Stronger mediation tests could have been performed on a data set with three time points, where Time 2 normative aggression beliefs could be used to predict future (i.e., Time 3) aggression. The reverse directional models in which exposure to violence predicts normative beliefs through changes in aggression, however, fit significantly worse than the hypothesized models in which exposure to violence predicts aggression through changes in normative beliefs. Moreover, we should be cautious interpreting these meditational results because they might be due to statistical suppression or confounding effects (MacKinnon, Krull, & Lockwood, 2000).

Because our data are correlational, one cannot make causal inferences. However, it would be unethical to manipulate prolonged exposure to violence at home, in the neighborhood, at

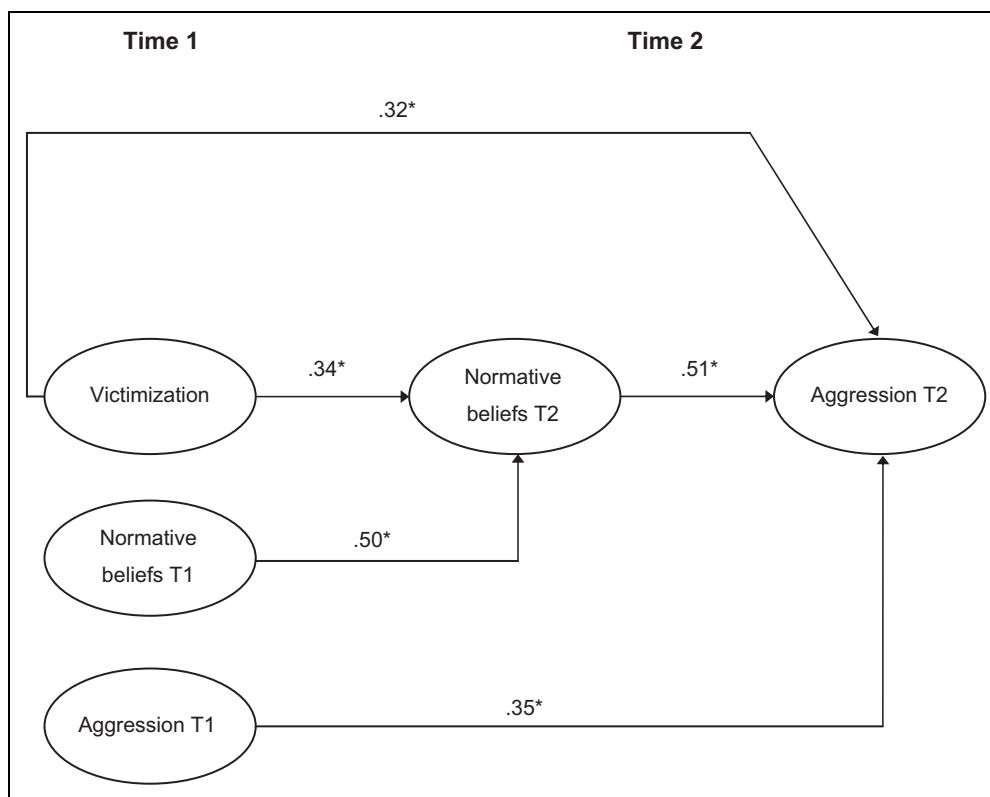


Figure 2. Indirect effect of normative aggression beliefs on the link between experiencing violence as a victim and aggression 6 months later
 $*p < .001$.

school, and even on television. The longitudinal nature of our data at least allows us to determine that exposure to media violence occurred 6 months before aggression was measured.

Another weakness is that we did not measure distal factors such as genetic predispositions or early life history—factors that may also affect both how much violence children are exposed to and how much they perceive violence to be normal behavior.

When people believe that aggression is a normal and acceptable behavior, inhibitions against behaving aggressively are reduced. Thus, one important direction for future intervention research is to try to counter normative aggression beliefs and teach children that aggression is not normal or acceptable behavior.

As found in other studies (e.g., Guerra et al., 2003; Musher-Eizenman et al., 2004), the mediation effects that we obtained were partial, suggesting that other potential mediators besides children's normative beliefs may be important as well. Future research could examine the role of other potential mediators, such as desensitization to violence.

Conclusion

The old adage of “monkey see, monkey do” seems to aptly describe the results of our research. Our findings were robust. Exposure to violence increased aggression in boys and girls attending public and private schools, regardless of their social status. Exposure to violence can also increase aggression

regardless of where the exposure occurs, in the real world (i.e., at home, at school, in the neighborhood) or in the virtual world (i.e., on TV), and regardless of whether the person is a witness or a victim. Our findings also shed light on one possible reason why exposure to violence increases aggression. When children are immersed in violence, they come to believe that violent behavior is normal and acceptable. Such beliefs lower their inhibitions against behaving aggressively against others.

Declaration of Conflict of Interest

The authors declared that they had no conflicts of interests with respect to their authorship or the publication of this article.

Financial Disclosure/Funding

The authors disclosed receipt of the following financial support for the research and/or authorship of this article: This study was supported by a grant from the Ministerio de Ciencia y Tecnología (SEJ2006-61720) and a predoctoral grant to the first author (BFI06.49).

References

- Arias Álvarez, M., Sánchez Bayle, M., Gancedo García, C., Martín Martín, R., Estepa Soto, M. R., & Díaz Martínez, M. E. (2004). Nivel socioeconómico y consumo de recursos sanitarios en atención primaria [Socioeconomic status and health resource consumption in primary care]. *Anales De Pediatría*, 61, 292-297.

- Buka, S. L., Stichick, T. L., Birdthistle, I., & Earls, F. J. (2001). Youth exposure to violence: Prevalence, risks and consequences. *American Journal of Orthopsychiatry*, 71, 298-310.
- Byrne, B. (1998). *Structural equation modeling with LISREL, PRELIS and SIMPLIS: Basic concepts, applications, and programming*. Mahwah, NJ: Erlbaum.
- Calvete, E. (2008). Justification of violence and grandiosity schemas as predictors of antisocial behavior in adolescents. *Journal of Abnormal Child Psychology*, 36, 1083-1095.
- Calvete, E., & Cardeñoso, O. (2005). Gender differences in cognitive vulnerability to depression and behavior problems in adolescents. *Journal of Abnormal Child Psychology*, 33, 179-192.
- Carlson, M., Marcus-Newhall, A., & Miller, N. (1989). Evidence for a general construct of aggression. *Personality and Social Psychology Bulletin*, 15, 377-389.
- Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology*, 112, 558-577.
- Cox, C. E., Kotch, J. B., & Everson, M. D. (2003). A longitudinal study of modifying influences in the relationship between domestic violence and child maltreatment. *Journal of Family Violence*, 18, 5-17.
- Crick, N. R. (1996). The role of overt aggression, relational aggression, and prosocial behavior in the prediction of children's future social adjustment. *Child Development*, 67, 2317-2327.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, 66, 710-722.
- Finkelhor, D., Ormrod, R. K., Turner, H. A., & Hamby, S. L. (2005). The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment*, 10, 5-25.
- Guerra, N. G., Huesmann, L. R., & Spindler, A. (2003). Community violence exposure, social cognition, and aggression among urban elementary school children. *Child Development*, 74, 1561-1576.
- Huesmann, L. R., Dubow, E. F., & Boxer, P. (2009). Continuity of aggression from childhood to early adulthood as a predictor of life outcomes: Implications for the adolescent-limited and life-course-persistent models. *Aggressive Behavior*, 35, 136-149.
- Huesmann, L. R., & Guerra, N. G. (1997). Children's normative beliefs about aggression and aggressive behavior. *Journal of Personality and Social Psychology*, 72, 408-419.
- MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding, and suppression effect. *Prevention Science*, 1, 173-181.
- Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology*, 93, 568-592.
- Musher-Eizenman, D., Boxer, P., Danner, S., Dubow, E. F., Goldstein, S. E., & Heretick, D. M. L. (2004). Social-cognitive mediators of the relation of environmental and emotion regulation factors to children's aggression. *Aggressive Behavior*, 30, 389-408.
- Muthén, L. K., & Muthén, B. O. (1998-2006). *Mplus user's guide*. (4th ed.) Los Angeles: Muthén & Muthén.
- Nishina, A., & Juvonen, J. (2005). Daily reports of witnessing and experiencing peer harassment in middle school. *Child Development*, 76, 345-450.
- Olweus, D. (1979). The stability of aggressive reaction patterns in males: A review. *Psychological Bulletin*, 86, 852-875.
- Orue, I., & Calvete, E. (2010). Development and validation of a questionnaire to measure exposure to violence. *International Journal of Psychology and Psychological Therapy*, 10, 279-292.
- Osofsky, J. D. (2003). Prevalence of children's exposure to domestic violence and child maltreatment: Implications for prevention and intervention. *Clinical Child and Family Psychology Review*, 6(3), 161-170.
- Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., Stouthamer-Loeber, M., & Liu, J. (2006). The reactive-proactive aggression questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behavior*, 32, 159-171.
- Slater, M. D., Henry, K. L., Swaim, R. C., & Anderson, L. L. (2003). Violent media content and aggressiveness in adolescents: A downward spiral model. *Communication Research*, 30, 713-736.
- Wilson, H. W., Smith Stover, C., & Berkowitz, S. J. (2009). The relationship between childhood violence exposure and juvenile antisocial behavior: A meta-analytic review. *Journal of Child Psychology and Psychiatry*, 50, 769-779.

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