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Personality and media influences on violence and depression in a cross-national sample of young adults: Data from Mexican–Americans, English and Croatians

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ABSTRACT

The issue of potential media effects on psychological health of youth and young adults has been debated for decades. Research on media effects has not always been consistent. One issue that has been raised regards whether the relatively modest media effects found in some research might be explained through mediating personality variables. This hypothesis was examined in three samples of young adults: Mexican–Americans ($n = 232$), Croatians ($n = 455$) and English ($n = 150$). Results indicated that trait aggression was a consistent predictor of both violent crimes and depression across samples. General personality variables were less consistent predictors of violence, although neuroticism consistently predicted depression across samples. Media violence exposure did not predict negative outcomes except among Croatians for whom exposure to violent video games predicted fewer violent crimes, and exposure to television violence predicted increased violent crimes.

1. Introduction

In recent decades considerable attention has focused on the potential deleterious effects of media violence exposure on the psychological health of viewers. In the year 2000 a joint statement of the American Psychological Association, American Academy of Pediatrics, American Medical Association and several other groups expressed great concern about the negative effects of violent media (American Academy of Pediatrics, 2000). The joint statement concluded that evidence from experimental and correlational studies unequivocally supports the hypothesis that exposure to media violence leads to harmful outcomes. However, some scholars have expressed skepticism with this view, and concern that this joint statement may overstate the evidence for negative effects. For instance, several scholars have noted the joint statement overstates the number of studies by approximately 300–500% (Freedman, 2002; Pinker, 2002), and that such calls for alarm neglect declining youth violence rates (Ferguson, 2008; Olson, 2004). Despite the explosion of video games and other violently themed media, adult and youth violence has substantially declined over the past decades in most industrialized nations (van Dijk, van Kesteren, & Smit, 2007). Other critiques focus on methodological issues such as measurement validity of outcome variables (Gauntlett, 2005; Ritter & Eslea, 2005; Savage, 2004) and failure to control adequately for confounding "third" variables (Freedman, 1996; Gauntlett, 2005; Moeller, 2005; Savage, 2004) such as personality, family violence or even gender which may explain away any links between media violence and aggression (i.e. boys use more violent media and are more aggressive). It is to this issue, particularly the mediating role of personality, that this article attends.

2. Personality and media violence

Generally speaking, analyses of media violence exposure on viewer behavior find evidence for small effects, ranging in size roughly between 0% and 4% in overlapping variance, particularly when analyses are limited to only measures of serious aggression or violence (e.g. Ferguson & Kilburn, 2009; Paik & Comstock, 1994; Savage & Yancey, 2008; Sherry, 2007). Most studies, particularly early studies of media violence, relied heavily on bivariate correlations between media violence use and negative outcomes, which may have a tendency to inflate effects (Freedman, 2002; Savage, 2004). For example, if a small correlation is found between violent video game use and aggression, this may be explained by observing that boys both play more violent video games and are more aggressive than girls (Ferguson, Olson, Kutner, & Warner, in press). If controlling for gender causes the correlation between video game violence and aggression to drop to zero, then it can reasonably be assumed that the video game violence/aggression bivariate correlation is spurious and explained as a gender effects.

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Some attention has focused on the possibility that personality traits including Big-5 personality traits (Ferguson et al., 2008) and trait aggression (Ferguson et al., in press; Ybarra et al., 2008) may mediate media violence effects, although so far empirical attention to this issue has been relatively slim. Although some research indicates that personality can guide media preferences (e.g. Kraaykamp & van Eijck, 2005; Rentfrow, Goldberg, & Zilca, in press; Schutte & Malouff, 2004; Van Eijck, 2001), the importance of this issue has often been neglected in media effects research. Rentfrow et al. (in press, p. 29) suggest "The connections between personality and the entertainment-preference dimensions suggest that people seek out entertainment that reflects and reinforces aspects of their personalities. This interpretation is consistent with the view that people are not passive recipients of information, as the media effects paradigm implies. Researchers concerned with entertainment media, and in particular the associations between media exposure and behaviors, should consider media consumption as less of a passive process and more of an active one." The current research is informed by this view and seeks to address limitations in previous research by examining the degree to which media effects may be mediated by personality variables.

3. Media violence, personality and depression

The role of Neuroticism as well as other personality traits such as reduced Extraversion as predictors of depression are well established (Kercher, Rapee, & Schniering, 2009; Uliaszek et al., 2010). Comparatively little research has examined the relationship between violence in media and depression. Given strong relationships between depression and violence (Ferguson, San Miguel & Hartley , 2009), it would be reasonable to conclude that if exposure to violence in media is correlated with increased violent behavior, such media exposure may also be correlated with increased depression.

Relatively few studies have examined this specifically. Ohannessian (2009) found that general use of video games and television were not related to depression, but didn't examine violence content specifically. Liu and Peng (2009) found that excessive use of massively-multiplayer on-line games, which tend to contain some violence, can result in mental health problems such as depression. Williams, Yee, and Caplan (2008) found similar results. Other studies have found that video games in general (Russoniello, O'Brien & Parks, 2009), and those specifically with violent content (Ferguson & Rueda, 2010) may reduce depression. Overall, this research field remains relatively sparse, as of yet inconsistent, and with relatively little focus on violent content. More work remains to be done.

The current study seeks to improve upon past research in several ways. First, the current study will be one of very few (Ferguson et al., 2008 is the only other these authors are aware of) to consider Five-Factor Model personality traits as well as trait aggression as potential moderators of media violence effects. The current study will examine the influence of personality variables on preference for viewing violent entertainment, as well as their moderating role between violent entertainment exposure and violent behaviors and depressed mood. The current study will also consider the data cross-culturally.

3.1. Methods

3.1.1. Participants

3.1.1.1. Mexican–American sample. The sample of 232 Mexican–American young adults was recruited from a Hispanic-serving undergraduate institution in the US south. Their average age was 18.57 (*SD* = 1.94) and their average years of education was equivalent to a college sophomore. Regarding gender, 43.1% of the sample were male.

3.1.1.2. English sample. The English sample comprised of 150 young adults attending an urban university in London. The English sample was ethnically diverse, with 39.3% white ($n = 59$), 12.7% black ($n = 19$), 30.0% Asian ($n = 45$) and 16% Hispanic or "other" ($n = 24$). Regarding gender, 42% were male. Their average age was 20.24 (*SD* = 2.62) with average years of education also equivalent to a college sophomore in the US.

3.1.1.3. Croatian sample. The Croatian sample comprised 455 young adults attending an undergraduate university in the capital of Zagreb. Ethnically, the Croatian sample was almost entirely white, with only one individual identifying as ethnically Hispanic. Regarding gender, this sample was 44.6% male. The average age of this sample was 20.41 (*SD* = 1.81) with average education equivalent to a college sophomore in the US.

3.1.2. Materials

Table 1 provides coefficient alphas for all the personality and clinical outcome measures with the three samples. The included measures are described below.

3.1.2.1. Five-Factor personality traits. Questions related to the Five-Factor Model personality traits (Agreeableness, Conscientiousness, Extraversion, Neuroticism, Openness) were taken from International Personality Item Pool (IPIP; Goldberg et al., 2006; (http://ipip.ori.org/). For each construct, 10-item scales with Likert responses were taken from those identified by the IPIP as validated as NEO (i.e. Five-Factor Model) domains.

3.1.2.2. Trait aggression. To measure trait aggression, the Buss-Perry Aggression Questionnaire (AQ; Buss & Perry, 1992), a 29-item Likert scale measure was used. The AQ measures treat features related to propensity to respond aggressively to provocation and quickness to anger and has been well-validated and widely used.

3.1.2.3. Media violence exposure. Media violence exposure was measured by asking participants to report on their three favorite television shows and three favorite video games. Participants reported how often they used these media and rated the violence content of these media. Composite scores were summed across the three television shows and video games. Although assessing media violence exposure can be difficult and no one means is without flaw (Gauntlett, 2005), this approach has been widely used and successful in past research (e.g. Ferguson et al., 2008).

3.1.2.4. Violent crime. Measurement of self-reported violent crime was obtained using the *National Youth Survey* (Elliot, Huizinga, & Ageton, 1985), a measure first developed in conjunction with the National Institute of Mental Health. This measure is a 45-item self-report measure of violent and nonviolent crimes in which indi-

Table 1
Coefficient alphas for personality and clinical measures with three samples.

Measure	Mexican American	English	Croatian
Agreeableness	.67	.80	.76
Conscientiousness	.78	.84	.82
Extraversion	.77	.84	.83
Neuroticism	.72	.80	.87
Openness	.66	.68	.73
Trait aggression	.89	.91	.84
Violent crime	.66	.69	.69
Depression	.75	.84	.85

Table 2
Bivariate correlations between media violence exposure and depression and violent crime.

Outcome Variable	Mexican–American		English		Croatian	
	TV	VG	TV	VG	TV	VG
Violent crime	.17 (.04, .29)*	.18 (.05, .30)*	.04	.14	.11	.08
Depression	.07	.03	.07	−.03	.06	.05

Note: TV = Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Television violence exposure; VG = Video game violence exposure.
* $p \leqslant .004$.

viduals are asked to estimate how often they have committed those behaviors. An index of violent crime from 10 of these items related to acts such as "hit a parent or caregiver" or "attacked/seriously injured someone on purpose". Two violence questions ("Committed a sexual assault" and "Threatened teacher/professor with a weapon") had no variance in any of the samples and were not included.

3.1.2.5. Depression. To measure depression as an outcome, the Zung Depression Inventory was employed (Zung, 1965). The Zung consists of 20 Likert-scale items related to depressive symptoms and has been well-validated for clinical use.

3.1.3. Procedure

Participants were approached in their university classes with permission of the instructor and offered extra credit in exchange for participation. All procedures passed local IRBs and were designed to comply with APA standards for ethical research with human participants. Data were analyzed using hierarchical multiple regressions, with variables aligned to represent internal variables (gender, then personality) prior to external variables (media exposure) in order to assess the mediating role of the former over the latter.

4. Results

Table 2 presents bivariate correlations between media violence exposure and violent crimes and depression in the three samples. A Bonferonni correction of $p = .004$ was used to control Type I error due to multiple comparisons. Television violence and video game violence exposure were significant predictors of violent crime among Mexican–Americans, but neither English or Croatian young adults. The effect size for Mexican–Americans was also very small, despite being significant. Given these results are based on bivariate correlations, and are nonetheless small in size, the possibility remains that both gender and personality variables may explain the small overlapping variance between media violence exposure and violent crimes. No relationship was found between media violence exposure and depression.

Tables 3–5 present the multivariate results for Mexican–Americans, English and Croatians respectively with violent crimes as the outcome variable. Collinearity diagnostics revealed absence of multicollinearity with all tolerance statistics above .45, and VIF statistics all below 2.2. Several interesting findings emerge. First, although it is well known that male gender is associated with

Table 3
Multiple regression results for Mexican American sample, violent crimes.

Predictor variable	β	*t*-test	Significance
Male gender	.03	0.38	.71
$R^2 = .02$	$F(1, 230) = 5.13^*$ ($p = .05$)		
Agreeableness	−.09	−1.08	.28
Conscientiousness	.09	1.20	.23
Extraversion	.07	0.92	.36
Neuroticism	−.15	−1.83	.07
Openness	−.05	−0.67	.50
Trait aggression	.36 (.25, .47)	4.18	.001*
$R^2 = .12$	$F(7, 224) = 5.34^*$ ($p = .001$)	$\Delta R^2 = .12$	$F(6, 224) = 5.38^*$ ($p = .001$)
Television violence	.08	1.06	.23
Video game violence	.03	0.31	.76
$R^2 = .12$	$F(9, 222) = 4.30^*$ ($p = .001$)	$\Delta R^2 = .01$	$F(2, 222) = 0.73$ ($p = .49$)

Note: Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Double lines on the table represent steps in the regression model. Adjusted R^2 is reported for each step in the hierarchical models.
* Denotes statistical significance.

Table 4
Multiple regression results for English sample, violent crimes.

Predictor variable	β	*t*-test	Significance
Male gender	.17	1.89	.06
$R^2 = .04$	$F(1, 148) = 7.40^*$ ($p = .01$)		
Agreeableness	−.27(−.12, −.42)	−2.76	.01*
Conscientiousness	−.03	−0.34	.74
Extraversion	.12	1.32	.19
Neuroticism	−.04	−0.41	.69
Openness	.02	0.27	.79
Trait aggression	−.03	0.23	.82
$R^2 = .08$	$F(7, 142) = 2.89^*$ ($p = .01$)	$\Delta R^2 = .12$	$F(6, 142) = 2.08^*$ ($p = .05$)
Television violence	.05	0.58	.56
Video game violence	.02	0.20	.84
$R^2 = .07$	$F(9, 140) = 2.26^*$ ($p = .05$)	$\Delta R^2 = .00$	$F(2, 140) = 0.20$ ($p = .82$)

Note: Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Double lines on the table represent steps in the regression model. Adjusted R^2 is reported for each step in the hierarchical models.
* Denotes statistical significance.

Table 5
Multiple regression results for Croatian sample, violent crimes.

Predictor variable	β	*t*-test	Significance
Male gender	.23 (.14, .32)	3.86	.001*
R^2 = .05	F (1, 453) = 22.92* (p = .001)		
Agreeableness	.08	1.40	.16
Conscientiousness	−.07	1.41	.16
Extraversion	.06	1.19	.23
Neuroticism	−.18 (−.09, −.27)	−2.18*	.03*
Openness	−.06	−1.35	.18
Trait aggression	.33 (.25, .42)	5.69	.001*
R^2 = .14	F (7, 447) = 9.95* (p = .001)	ΔR^2 = .09	F (6, 447) = 7.46* (p = .001)
Television violence	.10 (.01, .19)	2.15	.03*
Video game violence	−.11 (−.02, −.20)	−1.95	.05*
R^2 = .15	F (9, 445) = 8.60* (p = .001)	ΔR^2 = .01	F (2, 445) = 3.47* (p = .03)

Note: Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Double lines on the table represent steps in the regression model. Adjusted R^2 is reported for each step in the hierarchical models.
* Denotes statistical significance.

increased proclivity for violence (bivariate correlations between male gender and violent crimes in the current study were .15 for Mexican Americans, .22 in the English sample and .22 in the Croatian sample, all significant at p = .05), current data suggests that male gender alone is not the most salient feature of this relationship. Only for Croatians was male gender (β = .23) a significant predictor of violent acts in the multivariate analysis (although the standardized coefficient for the English sample, β = .17 did approach significance). Rather personality factors appear to be better predictors of violence. For both Mexican Americans (β = .36) and Croatians (β = .33), trait aggression was the best predictor of violent acts. For the English sample low Agreeableness best predicted violent acts (β = −.27). Among Croatians, Neuroticism (β = −.18) was inversely related to violence. Thus it appears that, across the three nations sampled, personality features marked by hostility, lack of concern for others, and ill humor are best predictive of violent acts. Among all three samples, television violence and video game violence did not predict violent acts once personality features were controlled in a multivariate equation. The only exception was for the Croatian sample, wherein video game violence exposure was associated with reduced violence (β = −.11), and television violence exposure associated with increased violence (β = .10). Both of these findings were weak in effect size, however.

Tables 6–8 present the multivariate results for Mexican–Americans, English and Croatians respectively with depression as the outcome variable. Collinearity diagnostics revealed absence of multicollinearity with all tolerance statistics above .53, and VIF statistics all below 1.9. Results indicated that, across samples, neurotic personality traits were the most powerful predictor of depression (with βs ranging from .43 in the Mexican–American sample to .52 in the Croatian sample). Depression was also predicted by low levels of Conscientiousness (β = −.32 in the Mexican–American sample and −.15 in the English sample) and Extraversion (β = −.19 in the English sample and −.17 in the Croatian sample) and high levels of trait aggression (β = .29 in the English sample and .20 in the Croatian sample), although less consistently (in two out of three samples in each case). Female gender predicted depression only among Croatians (β = .12). Neither television nor video game violence exposure predicted depression in any of the three samples.

5. Discussion

This article set out to examine the degree to which personality variables, both Five-Factor Model variables and trait aggression, could mediate the relationship between media violence exposure and violent behaviors and depression. Our results suggest that, even without personality variables considered, correlational links between media violence and violent acts are inconsistent and small in effect size. However, once personality variables were controlled the relationship between media violence and violent acts essentially vanished in the Mexican American and English samples. The Croatian sample presented a more complex picture. For Croatians, video game violence exposure predicted reductions in violent acts, whereas television violence exposure related to increased violent acts. Collinearity diagnostics rule out multicollinearity for these opposing findings. It may be possible that video game players turn to violent games to reduce their anger over life stress, whereas a wider population of television viewers are not similarly motivated. Although controversial, there has been some research to indicate that young adults do use video games to reduce anger and stress (Colwell, 2007; Olson, 2010) and that video game violence use may reduce stress and hostility, at least in some groups (Colwell & Kato, 2003; Ferguson & Rueda, 2010; Unsworth, Devilly, & Ward, 2007). It should be noted that the joint statement (American Academy of Pediatrics, 2000) refers to research concluding the opposite, that violence exposure may increase hostility. Results on television violence with the Croatian sample fall closer to line with the joint statement, although it is important to point out that both of these effect sizes are small, and we caution against overinterpretation of either. Indeed, across six analyses of media violence effects on violent behavior, only one supported the view of a positive predictive relationship, and this (β = .10) at the level of "trivial" effects as recommended by Cohen (1992). Thus, our analyses provide little evidence to support the belief in harmful media effects on violent acts. Multicollinearity diagnostics demonstrated absence of collinearity between these variables. One possibility is that video game violence acts as a form of suppressor variable, explaining variance in the television violence variable, particularly within the Croatian sample.

Regarding personality, across samples, violent acts were predicted by negative personality traits such as high trait aggression and low Agreeableness. Among Croatians, neuroticism was inversely related to violence which may suggest a disinhibition effect, although this is speculative. These personality factors appear to be more salient variables related to violent acts than male gender alone, although males did engage in more violent acts than females in all three samples.

Although even the bivariate correlations between media violence and violent acts in our samples were very small, our results suggest that such small correlations can be understood through underlying personality variables such as trait aggressiveness, neuroticism and Agreeableness. As such, assuming a clear linear relationship, particularly of a causal nature, between media violence

Table 6
Multiple regression results for Mexican American sample, depression.

Predictor Variable	β	*t*-test	Significance
Male gender	−.08	−1.26	21
R^2 = .01	F (1, 230) = 2.65 (p = .11)		
Agreeableness	.02	0.29	.77
Conscientiousness	−.32 (−.21, −.43)	−5.60	.001*
Extraversion	−.08	−1.52	.13
Neuroticism	.43 (.33, .53)	7.09	.001*
Openness	−.06	−1.20	.23
Trait aggression	.10	1.64	.10
R^2 = .52	F (7, 224) = 36.95* (p = .001)	ΔR^2 = .12	F (6, 224) = 42.19* (p = .001)
Television violence	.04	0.81	.42
Video game violence	−.01	−0.20	.84
R^2 = .52	F (9, 222) = 28.63* (p = .001)	ΔR^2 = .01	F (2, 222) = 0.33 (p = .72)

Note: Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Double lines on the table represent steps in the regression model. Adjusted R^2 is reported for each step in the hierarchical models.
* Denotes statistical significance.

Table 7
Multiple regression results for English sample, depression.

Predictor variable	β	*t*-test	Significance
Male gender	−.08	−1.32	.19
R^2 = .02	F (1, 148) = 3.62 (p = .06)		
Agreeableness	.11	1.66	.10
Conscientiousness	−.15 (.01, −.31)	−2.36	.02*
Extraversion	−.19 (−.03, −.34)	−3.09	.002*
Neuroticism	.45 (.31, .58)	6.28	.001*
Openness	−.01	−0.11	.92
Trait aggression	.29 (.14, .43)	3.74	.001*
R^2 = .58	F (7, 142) = 27.44* (p = .001)	ΔR^2 = .12	F (6, 142) = 30.68* (p = .001)
Television violence	−.04	−0.75	.45
Video game violence	.06	0.98	.33
R^2 = .58	F (9, 140) = 21.40* (p = .001)	ΔR^2 = .01	F (2, 140) = 0.69 (p = .50)

Note: Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Double lines on the table represent steps in the regression model. Adjusted R^2 is reported for each step in the hierarchical models.
* Denotes statistical significance.

Table 8
Multiple regression results for Croatian sample, depression.

Predictor variable	β	*t*-test	Significance
Male gender	−.12 (−.03, −.21)	−2.76	.01*
R^2 = .03	F (1, 453) = 15.12* (p = .001)		
Agreeableness	.08	1.84	.07
Conscientiousness	−.07	−1.88	.06
Extraversion	−.17 (−.08, −.26)	−4.37	.001*
Neuroticism	.52 (.45, .59)	11.61	.001*
Openness	−.05	−1.32	.19
Trait aggression	.20 (.11, .29)	4.82	.001*
R^2=.54	F (7, 447) = 76.31* (p = .001)	ΔR^2 = .51	F (6, 447) = 83.75* (p = .001)
Television violence	−.01	−0.29	.77
Video game violence	.06	1.54	.12
R^2 = .55	F (9, 445) = 59.67* (p = .001)	ΔR^2 = .00	F (2, 445) = 1.19 (p = .30)

Note: Numbers in parentheses represent 95% confidence interval for standardized regression coefficients. Confidence intervals included only for significant results. Double lines on the table represent steps in the regression model. Adjusted R^2 is reported for each step in the hierarchical models.
* Denotes statistical significance.

and violent acts may be mistaken. Unfortunately most prior research on media violence has failed to adequately consider intervening personality variables (Savage, 2004). There are two theories that have been put forth to explain personality as a mediating factor between media violence and violent acts. The first of these is the Catalyst Model (Ferguson & Beaver, 2009) which considers violent behavior to arise from gene × environment interactions with personality as an intermediate developmental factor. Media violence influence is specifically excluded from the Catalyst Model, as it is felt to be both too distal, fantasy based rather than reality based, and also poorly supported by research. Recent evidence in a prospective study of youth (Ferguson, in press) suggests that the Catalyst Model is superior to older script-based aggression models in understanding youth violence. By contrast Markey and Markey (2010) suggests that personality variables and media exposure may interact, such that individuals highly predisposed to violence prior to media exposure may see an increase in aggression following violent media exposure. This theory is sometimes colloquially known as the "peanut butter" theory, as (analogous to peanut butter and peanut allergies), violent media is harmless to the vast majority of individuals but may produce effects in those already highly predisposed toward violence. Future research will be needed to delineate which of these approaches holds most promise, although we conclude both of these more recent theories are superior to older "script" theories of aggression, which appear to be poorly supported by the data, despite rhetoric on the part of

some supporters (Freedman, 1996; Gauntlett, 2005; Olson, 2004; Savage, 2004).

On the issue of depression, media violence use and depression do not appear to be related. There appears to be little evidence that media violence use is related to psychological harm in the form of mood symptoms. By contrast, personality factors, including high neuroticism and trait aggression, and low Conscientiousness and Extraversion were predictive of depression. Indeed we note that personality factors are far more powerful predictors of depression than they are of violence, at least with the current samples of young adults.

As with all studies, the current study has limitations that bear discussing. First, the current analysis is correlational in nature. No causal attribution should be made from the current work. Secondly, the current work is limited to convenience samples of college students. As such, generalization to other groups should be undertaken only with great caution. As for future research, our findings highlight the importance of multivariate analyses and control variables related to personality when undertaking research related to media effects. Given that so much of the historical work on media violence has relied on or favored bivariate analyses (Freedman, 2002; Savage, 2004), it is possible that estimates of media effects, particularly in meta-analyses which focus on bivariate results, may be overestimating the true size of effects. We suggest that future researchers undertake greater care in the use of multivariate analyses when examining media effects.

The issue of media effects on violence is likely to be debated for the foreseeable future. Our results add evidence to the concerns of some scholars that the effects of media violence exposure may be exaggerated and explained as due to the influence of personality variables. Individuals with certain personality styles may be more prone to seeking out violent media. Those individuals may also tend to commit more violent acts. Failure to consider this possibility may lead to unnecessary fear and alarm.

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