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Design Effectiveness Analysis of a Media Literacy Intervention to Reduce Violent Video Games Consumption Among Adolescents: The Relevance of Lifestyles Segmentation

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Abstract

Background Exposure to media violence might have detrimental effects on psychological adjustment and is associated with aggression-related attitudes and behaviors. As a result, many media literacy programs were implemented to tackle that major public health issue. However, there is little evidence about their effectiveness. Evaluating design effectiveness,

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particularly regarding targeting process, would prevent adverse effects and improve the evaluation of evidence-based media literacy programs. **Objectives** The present research examined whether or not different relational lifestyles may explain the different effects of an antiviolence intervention program. **Research design** Based on relational and lifestyles theory, the authors designed a randomized controlled trial and applied an analysis of variance 2 (treatment: experimental vs. control) $\times$ 4 (lifestyle classes emerged from data using latent class analysis: communicative vs. autonomous vs. meta-reflexive vs. fractured). **Subjects** Seven hundred and thirty-five Italian students distributed in 47 classes participated anonymously in the research (51.3% females). **Measures** Participants completed a lifestyle questionnaire as well as their attitudes and behavioral intentions as the dependent measures. **Results** The results indicated that the program was effective in changing adolescents' attitudes toward violence. However, behavioral intentions toward consumption of violent video games were moderated by lifestyles. Those with communicative relational lifestyles showed fewer intentions to consume violent video games, while a boomerang effect was found among participants with problematic lifestyles. **Conclusion** Adolescents' lifestyles played an important role in influencing the effectiveness of an intervention aimed at changing behavioral intentions toward the consumption of violent video games. For that reason, audience lifestyle segmentation analysis should be considered an essential technique for designing, evaluating, and improving media literacy programs.

Keywords
adolescents, media literacy, lifestyles, antiviolence attitudes, violence, video games

Violence is an obstacle to positive youth development (PYD) and a major public health issue (WHO, 1996) with long-term negative social repercussions (WHO, 2008). For instance, United Nations International Children's Emergency Fund (2012) has reported that a high proportion of teenagers are affected by physical violence and bullying. In developed countries, school violence has become a prevalent social problem: In the United States, teenage students were the victims of approximately 828,000 nonfatal assaults at school in 2010 (Kim & Brown, 2014). Moreover, violent experiences during adolescence are associated with severe social, emotional, cognitive, and physical damage and disturbance in adulthood that can sometimes lead to substance abuse (Chapman et al., 2011). Several studies have demonstrated that one of the factors

associated with violence among adolescents is exposure to media violence (Anderson et al., 2010; Möller, Krahé, Busching, & Krause, 2012).

Considering the relevance of the issue and the scientific evidence, both researchers (Möller et al., 2012; Patton et al., 2014) and policy makers (Bailey, 2011) have suggested the importance of implementing awareness-raising and educational media literacy programs for reducing violent media consumption and promoting negative attitudes toward deviant role models. These types of strategies may help to facilitate PYD. Although several prevention strategies have been implemented (e.g., Daphne III and Safer Internet Programs in the European Union, violence prevention campaigns of the Centers for Disease Control and Prevention in United States), very little is known about how these media literacy school-based interventions affect behavioral change (Möller et al., 2012; Smith, Schneider, Smith, & Ananiadou, 2004). Sometimes persuasive communication campaigns can be effective (e.g., Farrelly, Pechacek, Thomas, & Nelson, 2008; Flynn et al., 2007). However, sometimes they can be ineffective (e.g., Foxcroft, Lister-Sharp, & Lowe, 1997; Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2008) or even backfire, resulting in the opposite effect of what was expected, a phenomenon known as ''boomerang effect'' (Brändle, Cárdaba, & Ruiz-San Román, 2011; Cárdaba, Briñol, Brändle, & Ruiz San Román, 2016; Hart, 2013). To make a contribution to the fields of PYD and adolescent interpersonal violence prevention strategies and policies, the present study evaluated the efficacy of an Italian school-based intervention program that focused on violent media consumption (Kirsh, 2010) using an a posteriori marketing research tool: audience segmentation based on relational lifestyle variables. The novelty of this study resides in its cross-disciplinary perspective and use of audience segmentation to evaluate the effectiveness of a media literacy intervention. Drawing from an ecological model (Livingstone, Haddon, & Görzig, 2012) that shows the importance of social relationship variables, this research identified adolescent profiles that should be considered for use in fine-tuning violence prevention messages. The results of this study can therefore be used to provide researchers, decision makers, and practitioners, who work with and for adolescents, with evidence to develop effective, targeted campaigns, thereby facilitating adolescent empowerment, healthy lifestyles, and positive development.

Adolescents Lifestyles in the Context of Reflexive Modernity

Lifestyles could be defined as a complex and dynamic integrated system of preferences and attitudes, influenced by the socialization process, and

translated into social routine decisions and actions that can be operationa-lized in terms of a complex system of behaviors, orientations, resources, and knowledge structures developed through experience that express personal and social identity (Faggiano, 2007; Thirlaway & Upton, 2009).

Through exploratory qualitative studies on the relationships of young people with their families and friends, Archer (2003, 2012) identified four theoretical types of youth lifestyles based on adolescents' different reflex-ivity or ''the regular exercise of the mental ability, shared by all normal people, to consider themselves in relation to their (social) contexts and vice versa'' (Archer, 2012, p. 1): (1) communicative reflexives (young people whose inner conversations and decisions include positive interactions with the family and other agencies), (2) autonomous reflexives (adolescents who make decisions in solitude, without too much parental support), (3) meta-reflexives (with conflicted family relationships and frequent internal con-versations: They do not accept messages channeled by agencies without reflection), and (4) fractured reflexives (passive teenagers who, due to the poor quality of their relationships, have difficulty both in conducting fruit-ful conversations with others and purposeful internal conversations). Research on consumer behavior (Garcia Ruiz, 2009) has shown that these types of reflexivity can be used in an audience analysis with segmentation purposes since they explain the reason why relational lifestyles have a huge influence on the consumption decisions of young people.

Enabled by a marketing technique like lifestyle segmentation (Kahle & Chiagouris, 2014), lifestyle theory (for a review, see Faggiano, 2007) could provide useful insights for analyzing the effectiveness of media literacy interventions. Interpersonal relationships might be effective in moderating exposure to violent media. Market segmentation is a method used for classifying individuals, on the basis of key discriminant or criter-ion variables, into homogeneous segments that share relevant conditions for an outcome of interest (McDonald & Dunbar, 2004). Audience seg-mentation is vital for designing and evaluating social marketing strategies (Briñol & Petty, 2015; Kotler & Lee, 2012). Although some studies have made lifestyle analyses (Kahle & Chiagouris, 2014; Mathijssen, Janssen, Bon-Martens, & Goor, 2012), few of them have included social relation-ship variables, despite their influence in the social, emotional, and per-sonality development of children (Ispa et al., 2013; Stacy, Newcomb, & Bentler, 1991).

In line with previous literature, and based on a previous study of the effectiveness of a segmentation strategy of alcohol users (Mathijssen et al., 2012), we propose to cluster the adolescents who participated in a

school-based media literacy intervention (''Stop Violence on Social Media'' project; for a review of the model underlying the intervention, see Appendix) on the basis of their lifestyles in order to analyze its effectiveness. Specifically, adolescents who have less experience making decisions based on positive interactions and exchange of ideas with others (mainly parents and other role models) may be less persuaded by an antiviolence school-based intervention because they might have problems accepting messages that come from external sources. The media literacy intervention, being oriented toward behavior change, requires certain social competences developed through an active process of socialization. In contrast, those adolescents who can count on supportive role models to follow and help develop healthy behaviors and habits should be more persuaded by the program than the other groups of adolescents.

Objectives

The present research examined whether or not different relational lifestyles may explain the different effects of a media literacy intervention program. To examine the efficacy of the ''Stop Violence on Social Media'' project, we analyzed attitudes and behavioral intentions toward violence and violent video games shown by a sample of Italian middle and high school students who participated in the program compared to a control group. When examining the latent structure of resulting data, and without using a predefined classification strategy, participants were segmented on the basis of their relational lifestyles. We hypothesized that some adolescents would be more easily persuaded by the media literacy intervention than others depending on their specific relational lifestyle. Therefore, we tested two hypotheses:

> **Hypothesis 1:** The ''Stop Violence on Social Media'' project is a useful tool to change teenagers' attitudes toward violence.
> **Hypothesis 2:** Adolescent relational lifestyles may moderate the efficacy of the media literacy program although the specific direction is not predicted.

Method

Participants and Design

Seven hundred and thirty-five (735) Italian students distributed in 47 classes participated anonymously in the present research (48.7% males and 51.3%

females). Schools were contacted and objectives for the intervention were explained in detail. From those schools that agreed to participate (four schools), informed consent was obtained both from schools' authorities and students' parents. Ages ranged from 12 to 19 (M_{age} = 14.04, SD = 1.04). The 47 classrooms were randomly assigned either to an intervention program or to a control group, that is, all the students from the same classroom were assigned to one of the two conditions. Given that the randomization procedure was done at the class level, standard errors are clustered on each class. All participants were seated in front of a computer and completed the questionnaire online by reporting their beliefs, attitudes, behavioral intentions, and habits, so they could be classified later into one of four lifestyles (i.e., communicative, autonomous, meta-reflexive, and fractured; Archer, 2012; Garcia Ruiz, 2009). The design was an analysis of variance (ANOVA) 2 (treatment: experimental vs. control) × 4 (lifestyles: communicative vs. autonomous vs. meta-reflexive vs. fractured). For the first time, this research evaluated the impact of the "Safe Social Media" project partially funded by the European Commission within the Daphne III program.

Procedure

As part of a general program about lifestyles, participants were exposed simultaneously to a program designed to promote antiviolence attitudes and behaviors. The program focused on violence in the media. After receiving the program, half of the participants reported their attitudes toward violence and their behavioral intentions of consuming violent video games in the next few days (experimental group). The other half of the participants (control group) completed these same measures before receiving the intervention. As mentioned above, all of the participants reported their beliefs, attitudes, behavioral intentions, and habits and were classified into one of four lifestyles (i.e., communicative, meta-reflexive, autonomous, and fractured; see Appendix for a full description of independent and dependent variables).

Independent Variables

Treatment. All participants received the media literacy program simultaneously, but classes were randomly assigned to complete the dependent measures immediately before the program (control treatment group) or to complete the dependent measures immediately after the program

(experimental treatment group). The change in the timing of the completion of the dependent variable allows us to test the efficacy of the intervention while, at the same time, permits that all the students benefit from receiving the intervention unlike other research that employs a waiting-list procedure.

Lifestyles. To measure the different lifestyles of the participants, we selected attitudes, behaviors, and values that were more applicable to adolescents' ways of living (Faggiano, 2007; Rivera & Santos, 2016). Based on the above theoretical background, 38 items were retained from the total pool of items in the questionnaire.

Dependent Variables

Attitudes toward violence. Participants' attitudes toward violence were assessed using different prompts that asked about their perception of violence in terms of favorability.

Behavioral intentions toward consumption of violent video games. All the participants were asked about their behavioral intentions to consume violent video games both in the near and distant future in terms of probability.

Results

Lifestyles

The 38 items were submitted to a latent class analysis (LCA). Regarding theoretical and empirical concerns, we selected a four-class solution. Although the most common model fit index is the χ^2, we could not compute it because there were too many cells where the observed frequency was small (or zero). The model fit for this analysis met satisfactory fit based on its entropy: The entropy reached in this analysis was .90, indicating high certainty in classification. To assure that we selected the correct number of classes, we compared different models using the Bayesian information criterion (BIC) adjusted values: the four-class solution ($BIC_4 = 51,048.14$) fitted better than the three-class solution ($BIC_3 = 68,151.03$) and better than the five-class solution ($BIC_5 = 68,867.93$). We chose the model for which the adjusted BIC value was the lowest. The first class was "communicative lifestyle" (16.3%), the second class was "fractured lifestyle" (27.3%), the third was "autonomous lifestyle" (29.5%), and the fourth was "meta-reflexive lifestyle" (26.8%). The resulting four classes differed from each other in terms of critical variables. Figure 1 shows the
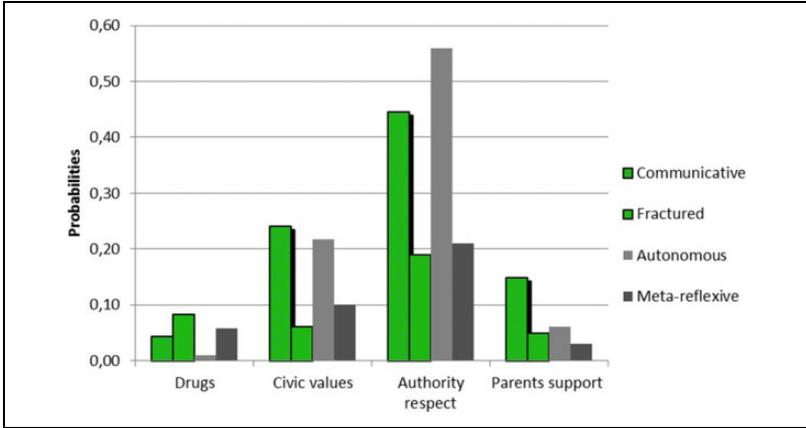
Figure 1. Probabilities for the maximum category (5) of some of the variables in the latent class analysis.

probability distribution of some of the more critical variables in the LCA. As we can see, there are differences between lifestyle classes. For example, there was a higher probability that "communicative" adolescents would engage in dialogue with parents about their feelings and seek the support of their parents. "Communicative" adolescents were also more likely to report a desire to do good things for their neighborhoods (i.e., civic values). In addition, "communicative" adolescents had a lower probability for taking drugs compared to fractured adolescents. The "fractured" adolescents had a higher probability of taking drugs with respect to the other three classes taken together and a lower probability both for doing good things for their neighborhoods and for having respect for authority. The "autonomous" adolescents had a higher probability of respect for authority and the lowest probability to consume drugs. The "meta-reflexive" adolescents had a lower probability of seeking parents' support compared to the other three lifestyles.

Attitudes Toward Violence

We submitted the "attitude toward violence" index to an ANOVA 2 × 4. As expected (Hypothesis 1), this analysis revealed a main effect of treatment: Participants who received the program rated violence as more
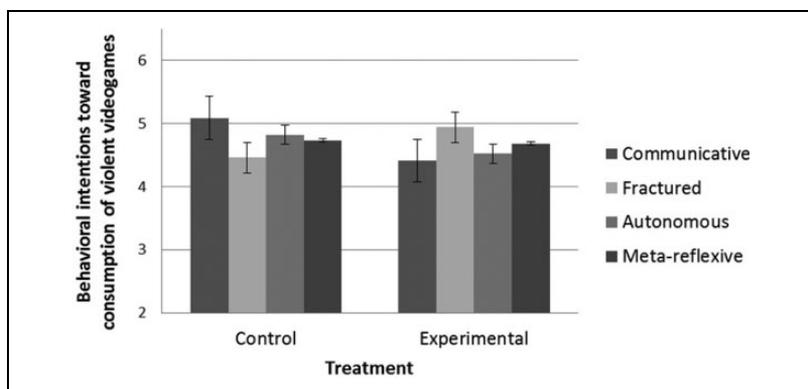
Figure 2. Behavioral intentions toward consumption of violent video games as a function of treatment and lifestyles.

unfavorable ($M = 2.24$, $SD = 1.51$) than those who were in the control group ($M = 2.63$, $SD = 1.85$), $F(1, 713) = 11.574$, $p = .001$, $\eta^2 = .016$. There was no effect of lifestyles, $F(3, 713) = 1.344$, $p = .26$, $\eta^2 = .006$. The two-way interaction between treatment and lifestyle was nonsignificant, $F(3, 713) = 1.780$, $p = .15$, $\eta^2 = .007$.

Behavioral Intentions Toward Consumption of Violent Video Games

We submitted "behavioral intentions toward consumption of violent video games" to an ANOVA 2 × 4. There was no effect of treatment, $F(1, 722) = .769$, $p = .38$, $\eta^2 = .001$, nor lifestyles, $F(3, 722) = .040$, $p = .99$, $\eta^2 < .001$. As illustrated in Figure 2, however, the resulting two-way interaction between lifestyles and treatment was marginally significant, $F(3, 722) = 2.311$, $p = .07$, $\eta^2 = .01$, thus indicating that the treatment effectiveness was marginally different depending on the lifestyle (see Table 1 for mean, *SD*, and cell sample sizes). We can decompose this interaction by comparing lifestyle sectors between treatment groups. For the "communicative" type, those who were in the experimental group had fewer intentions to consume violent video games ($M = 4.41$, $SD = 1.93$) than those who were in the control group ($M = 5.09$, $SD = 2.12$), $F(1, 722) = 3.248$, $p = .07$, $\eta^2 = .004$, suggesting that the media literacy program was effective for them. For "fractured" types, we obtained the opposite pattern of results: Those who were in the experimental group had more intentions to consume violent video games ($M = 4.94$, $SD = 1.90$) than those who were in the

Table 1. Mean, Standard Deviation, and Cells Sample Size.

| Lifestyle | Treatment | Attitudes Toward Violence | | Behavioral Intentions To Consume Violent Video Games | | |
		Mean	SD	Mean	SD	n
Communicative	Control	2.740	1.942	5.089	2.117	64
	Experimental	1.830	1.267	4.414	1.932	54
	Total	2.319	1.719	4.780	2.054	118
Fractured	Control	2.786	2.027	4.460	2.236	116
	Experimental	2.234	1.541	4.941	1.902	85
	Total	2.550	1.851	4.663	2.110	201
Autonomous	Control	2.346	1.584	4.821	1.988	97
	Experimental	2.208	1.507	4.520	1.956	118
	Total	2.271	1.540	4.656	1.972	215
Meta-reflexive	Control	2.634	1.806	4.732	1.955	87
	Experimental	2.474	1.558	4.682	2.044	109
	Total	2.545	1.670	4.704	1.999	196
Total	Control	2.624	1.850	4.732	2.088	364
	Experimental	2.236	1.505	4.650	1.967	366
	Total	2.430	1.670	4.691	2.028	730

control group ($M = 4.46$, $SD = 2.24$), $F(1, 722) = 2.767$, $p = .09$, $\eta^2 = .004$, suggesting a boomerang effect. For "autonomous" and "meta-reflexive" adolescents, we found a null effect. For "autonomous" type, no differences were found between experimental ($M = 4.52$, $SD = 1.96$) and control group ($M = 4.82$, $SD = 1.99$), $F(1, 722) = 1.178$, $p = .28$, $\eta^2 = .002$. For "meta-reflexive" type, the difference between experimental ($M = 4.68$, $SD = 2.04$) and control group ($M = 4.73$, $SD = 2.09$) was also not significant, $F(1, 722) = .029$, $p = .86$, $\eta^2 < .001$.

Conclusion and Discussion

This research focused on relational lifestyles as a determinant in predicting the effectiveness of a media literacy intervention. The results showed that adolescents' attitudes toward violence can be changed after participating in an intervention program that promotes antiviolence attitudes and critical media consumption, regardless of adolescents' lifestyles. Those participants in the safe social media intervention were, on average, more likely

to form unfavorable attitudes toward violence compared to those in the control group (Hypothesis 1).

With regard to the second hypothesis of the study, we only found tentative evidence supporting the idea that adolescents' relational lifestyles might influence the effectiveness of the media literacy intervention aimed at changing behavioral intentions toward the consumption of violent video games. Specifically, for those adolescents with a "communicative" lifestyle, the program seemed effective in changing their intentions to consume violent video games, but we need to point out that this evidence is, at best, partial. That is, the "communicative" adolescents had fewer intentions to consume violent video games after receiving the media literacy intervention compared to those who were in the control group. However, for those adolescents with a "fractured" lifestyle, the program seemed counterproductive in changing their behavioral intentions. That is, the "fractured" adolescents had higher intentions to consume violent video games after receiving the media literacy intervention compared to those who were in the control group, resulting in an undesired "boomerang effect." For the other two lifestyle segments ("autonomous" and "meta-reflexive" types), there was no effect on the intervention.

These results may suggest that further projects and studies are needed to consider the complexity that exists when evaluating the effectiveness of communication campaigns and media literacy programs. Campaign evaluation is a complex task because, as this study shows, different results can be obtained depending on the dependent variable that is analyzed. In the present study, the media literacy program seemed effective when analyzing attitudes toward violence but less effective when analyzing behavioral intentions toward violent video games. Moreover, the effectiveness of an intervention can be difficult to evaluate because even the same dependent variable can be affected by other moderating variables. Including the relational lifestyles as predictors allowed this study to show some evidence suggesting that the effect of treatment on behavioral intentions depended partially on the type of lifestyle of the individual who received the treatment.

It is not easy to know why some relational lifestyles (i.e., communicative) facilitate the effectiveness of the intervention and others (i.e., fractured) lead to a boomerang effect. Although some authors have proposed to introduce lifestyles based on different reflexivity in consumption studies (Garcia Ruiz, 2009; Garcia Ruiz & Rodriguez-Lluema, 2010), there is no evidence about their influence on the way of reacting toward an intervention. We did not have any strong a priori prediction regarding which

segment would react positively or negatively to the intervention, but there could be some post hoc explanations. It might be effective for those lifestyles characterized by good positive interactions with the family and friends, while the contrary could be hypothesized for lifestyles characterized by negative interactions and drug consumption. For example, communicative adolescents—who can count on supportive role models to follow and develop healthy behaviors and habits—may be more open to messages that reinforce their own lifestyle, whereas fractured adolescents—who lack a positive social network and have habits and behavior that hinder the development of productive relationships—might react negatively to messages that threaten their own lifestyle.

Thus, taking into account relational lifestyles as a possible moderator could be critical in creating effective media literacy interventions. Our results suggest that not every individual should receive the same kind of intervention because the intervention might have undesired and counterproductive consequences for some individuals. To maximize the effectiveness of antiviolence media literacy programs, communicative, fractured, autonomous, and meta-reflexive adolescents might need to receive different types of interventions (Briñol & Petty, 2006, 2009; Kahle & Chiagouris, 2014).

Therefore, this study provides new evidence suggesting that segmentation of the target audience could be a useful technique to reduce violence by tailoring the type of message with important variables of the adolescents such as their specific relational lifestyles. However, more research on the role of lifestyles relational dimensions (experiences, social identity, subjective culture, and motivations) in consumption patterns is needed (Livingstone, Mascheroni, & Staksrud, 2015).

Of course, to determine the best strategy to avoid these undesirable consequences of these interventions, more research is needed on the psychological mechanisms underlying the assimilation and contrast effects of different lifestyles. For example, if fractured adolescents reject the intervention because they feel self-threatened by the message, then a self-affirmation strategy (i.e., participants thinking about what values they consider personally important) before delivery of the intervention should increase its effectiveness (Briñol, Petty, Gallardo, & DeMarree, 2007; Briñol, Petty, & Wagner, 2009; Cohen, Aronson, & Steele, 2000; Correll, Spencer, & Zanna, 2004).

One important limitation of the present study is the absence of an active control group in addition to the passive form used here. For instance, the adolescents in the active control group should have attended a neutral

intervention outside the area of violence control that promoted habits such as recycling to allow them to be involved in a program of a similar duration to that of the experimental group. This would have permitted us to rule out a number of alternative explanations for the resulting effects of the study (e.g., passage of time, feelings of being special, feelings of being mistreated, etc.). Despite this, we chose a passive control group because access to school was limited for a short period of time, making it difficult to offer two different intervention programs.

Another limitation is the duration of the intervention. The intervention was only 2 hrs for the same reason mentioned above (i.e., access to school was limited for a short period of time). We might think that interventions with longer durations should result in different outcomes; therefore, future research with longer interventions than the one applied in this research is needed.

In closing, although the results of this research does not allow to propose a definitive typology for audience targeting, we think that our moderation-by-lifestyles approach is useful for those who work with and for adolescents and try to develop effective targeted programs and campaigns. First, as previous segmentation research showed, this study presented some suggestive evidence that an intervention program may not be equally effective for all the adolescents. Usually, segmentation studies only take into account variables at the individual level (e.g., personality traits or sociodemographic characteristics) to divide groups (Ispa et al., 2013; Stacy et al., 1991). Instead, we used multidimensionality variables such as lifestyles that include variables at individual, structural, and societal levels (e.g., habits of consumption, relationships with the community, friends, and parents, etc.). Thus, in this study, we extended these individual factors to a new, integrative concept such as the relational lifestyles of adolescents.

From a practical standpoint, our results suggest that lifestyle segmentation and targeting strategies might benefit from considering not only individual attitudes, interests, opinions, and values included in models commonly used by social marketing and other disciplines but also more complex factors like lifestyles developed through interpersonal relationships. In consequence, the results of this study may be useful for the development of new holistic segmentation strategies and refinements of the instruments applied for their evaluation. Thus, future research should explore new scales and questionnaires, as well as qualitative techniques, to refine the clustering on lifestyles and make a clearer contribution for the moderating role of lifestyles on the effectiveness of interventions and social campaigns.

Appendix

Variables Description

Independent variables

Treatment. To avoid information contamination, all the participants received the media literacy intervention simultaneously, but the experimental group completed the dependent measure after and the control group before the intervention. This procedure permitted us to test whether the intervention program was effective in changing antiviolence attitudes and related behavioral intentions to consume violent video games. The intervention program was designed to increase the adolescents' awareness of the negative consequences of the presence of violence in the media (i.e., TV shows, films, and video games) and to change their violence consumption-related attitudes and behaviors. The program consisted of three sessions, each of 40 min duration. Every session was adapted to the motivations, previous knowledge, and language of the adolescents so as to engage them in listening to the speaker. Each session of the program was started by providing the participants with a story about situations in which an adolescent would need to make some decisions about consuming violence in the media. The idea of these narratives was to make the participants identify with the main character of the stories. The structure of the sessions was composed of three modules based on media, TV, and video games with a special emphasis on the latter, which was the focus of our research. The theoretical model underlying this intervention is based on the recommendations of Möller, Krahé, Busching, and Krause (2012), who recommend the use of social learning theory (Bandura, 1977) and script theory (Huesmann, 1998). Both theories explain the processes by which exposure to media violence leads to aggressive behavior and indicate how detrimental effects of this exposure might be diminished. On the one hand, exposure to media violence may trigger a mechanism of observational learning in which aggressive behavior is developed through imitation. On the other hand, script theory links observational learning from violent media characters to the development of aggressive scripts.

Lifestyles. Thirty-eight items were used to assess participants' lifestyles. The item-response format ranged from 1 "*never*" to 5 "*very much*." Some examples of these items were "When I hang out with my friends, I consume alcohol" or "I smoke cigarettes," "I have attended cultural activities such as going to museums and theatres," "It is important for me to do things to improve my town or community," "My parents know where I am going or

what I am doing during my leisure time," "In my peer group, I can give my opinion without fear because others will respect me," and "I have talked to my parents about drug and alcohol abuse."[1] Then, in order to explore the lifestyle sectors in this population, we carried out a LCA using the statistical software *Mplus*, Version 4 (Muthén & Asparouhov, 2002). The number of latent classes is unknown and cannot be directly estimated a priori. To identify the model with the optimal number of classes, various models with different numbers of latent classes must be estimated and compared with each other (Wang & Wang, 2012). In this analysis, a cluster solution was determined according to the following criteria. Firstly, the overall fit of the tested latent class model was analyzed using the entropy, which indicated the certainty in the classification. Secondly, the most economical model was selected from those that fitted, that is, the model for which the BIC (adjusted value) presents the lowest value. As a result of this analysis, we were able to identify four different lifestyle factors. In order to classify these lifestyles, we used both theoretical and empirical strategies. In order to determine the salient characteristics of these four lifestyle sectors, we used the probabilities of each category in each item. We based our views on previous literature consistent with our findings (Faggiano, 2007; García Ruiz, 2009) that also suggested four lifestyle categories: communicative, autonomous, meta-reflexive, and fractured. As a result of this process, we were able to name the lifestyle sectors in a manner consistent both with previous literature and with the findings from the LCA.

Dependent variables

Attitudes toward violence. Participants were asked "how do you evaluate violence?" in a series of 11 9-point semantic differential scales (i.e., bad–good, dislikeable–likeable, not acceptable–acceptable, not recommended–recommended, useless–useful, unpleasant–pleasant, negative–positive, inconvenient–convenient, harmful–beneficial, undesirable–desirable, and unnecessary–necessary). Ratings were highly intercorrelated ($\alpha = .96$), so they could be averaged to create a composite attitude index. Higher values on this index indicated evaluations more favorable toward violence.

Behavioral intentions toward consumption of violent video games. This variable was measured using three 9-point scales anchored at "*completely disagree*" to "*completely agree*." The examples were "In the future, I would like to play violent video games to a lesser degree," "When I grow up, I will forbid my children to play violent video games," and "In the future, I would like to play video games that teach values to the gamers." These items were

intercorrelated ($\alpha = .69$), therefore they were averaged to create a composite index of intentions to consume violent video games. We reversed these items to allow for greater consistency between this dependent measure and the ''attitudes toward violence'' index. Thus, higher values on this index indicated more intentions to consume violent video games. We also included an item about civic video games as a proxy to measure the intentions of participants to consume violent video games plus their intentions to refuse usage of antiviolence video games. The result of reversing the item was that those who rated higher in it indicated greater intentions to consume a larger proportion of violent video games.

Declaration of Conflicting Interests

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Note

1. Link to the full distribution of lifestyle items: https://drive.google.com/open?id=0B9Cz2PX_2KM3ZWZPbkZMMU8tUEk

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