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Video Games, Violence Justification and Child-to-Parent Violence

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Abstract

During the past decade, video games have become the main industrial entertainment sector, although research on the effects of violence in video games on juvenile aggressiveness has raised concerns that they may pose a significant social risk. The objective of this study was to analyze the relationship of exposure to violent video games, pathological video-gaming, and justification of violence with the perpetration of Child-to-Parent Violence (CPV) against the mother and the father, controlling for the sex, educational level, and violent TV exposure of the participant. The sample consisted of 439 students from Compulsory Secondary Education, (238 boys and 201 girls), aged between 13 and 18. Exposure to video games was assessed through an author-elaborated questionnaire, violence justification, and pathological video-gaming were evaluated with the Exposure to Violence Questionnaire and the Assessment of Pathological Computer-Gaming, respectively, and CPV was assessed through the Child-to-Parent Aggression Questionnaire. Hierarchical multiple regression analyses showed that pathological video-gaming and, specially, justification of violence, were related to the perpetration of CPV against both mothers and fathers. However, a relationship of exposure to violent video games and violence on TV with the perpetration of CPV was not found. These results suggest a potential new target for CPV prevention, as well as for the treatment of juvenile offenders.

Keywords Child-to-parent violence · Violent video games · Violence justification · Pathological video-gaming

Highlights

- Pathological video-gaming and justification of violence are related to the perpetration of CPV against both mothers and fathers.
- However, exposure to violent video games and violence on TV are not associated with CPV rates.

Parental abuse by children, or child-parent violence (CPV), is a phenomenon of great social importance that is generating interest among researchers and professionals due to its notable increase and impact on family dynamics. At present, CPV is an emerging phenomenon, with an increase in cases in recent years (Cortina & Martín, 2021). The Spanish Society for the Study of Child-Parent Violence (Spanish acronym, SEVIFIP) defines it as:

> "Repeated behaviors of physical, psychological (verbal or non-verbal), or economic violence, directed at the parents, or those who take their place. Specific aggressions are excluded, those that occur in a state of decreased consciousness which disappear when it is recovered (intoxications, withdrawal syndromes, delusional states, or hallucinations), those caused by psychological alterations (transient or stable), and parricide without a history of previous aggressions" (Pereira et al., 2017, p. 6).

Despite research conducted to establish the prevalence rate of CPV, studies show controversial results. This discrepancy is due to the different definitions of CPV, as well as differences in data collection methods (Gallego et al., 2019). In addition, estimating the prevalence of CPV is challenging due to underreporting, with only a small number of cases ever being reported. This may occur because parents often experience feelings of guilt and shame when considering reporting their child's behavior (Loinaz & de

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Sousa, 2019). Moreover, prevalence figures vary depending on the sample studied. Clinical samples tend to exhibit similar prevalence figures to those found in the general population, whereas judicial samples demonstrate higher rates of physical and psychological violence (Calvete et al., 2013; Ibabe et al., 2014).

International prevalence rates of CPV vary depending on economic status, sociodemographic variables or family structure. Previous research indicates that CPV occurs in a range between 5 and 22% of the population (Holt, 2016; Lyons et al. (2015); O'Hara et al., 2017). Studies involving specialized samples, such as young people referred from clinics, justice centers or from homes where domestic violence is present, suggest rates near the upper end of this range. Longitudinal studies carried out with community samples in the United States and Canada have shown that the prevalence of physical CPV ranges between 11% and 22%, while psychological CPV ranges between 51% and 75% (Margolin & Baucom, 2014). In Canada, a study by Pagani et al. (2004) reported prevalence rates of 12% for physical aggression and 60% for verbal aggression, over a 6-month period. In Spain, where most field studies have been conducted, the prevalence rate ranged from 21% for physical violence and 46% for emotional abuse (Jaureguizar & Ibabe, 2013). On the other hand, research on this phenomenon in countries such as Latin America is very limited. However, in Chile, recent studies shown a prevalence of psychological CPV towards both parents of 76.4%, 7.4% of physical violence, and 40.8% of economic violence (Jiménez-García et al., 2020). This lack of knowledge about the prevalence of this phenomenon and its frequency indicates a need for further research.

CPV is recognized as a growing phenomenon. Consequently, recent research has focused on identifying the risk factors for its occurrence. Regarding individual factors, studies suggest that variables such as alcohol and drug use, symptoms of depression in offenders, and the presence of dysfunctional components of social-cognitive processing in aggressors are associated with a higher risk for CPV (Calvete et al., 2012; Contreras et al., 2020). Other studies have identified family variables as risk factors for CPV. These variables include childhood abuse from parents to children, which supports the hypothesis of bidirectionality of violence, as well as exposure to violence at home and the use of punitive strategies (Beckmann et al., 2021; Calvete et al., 2015; Cano-Lozano et al., 2021). Social factors have been less extensively studied to date, but research suggests that negative social influence or experiencing intimate partner violence during adolescence may increase the risk of engaging in CPV (Del Hoyo-Bilbao et al. (2018); Izaguirre & Calvete, 2017).

Along these lines, some authors have proposed theoretical frameworks to explain CPV, with the aim of guiding professional intervention and legislative guidelines. The General Strain Theory (Agnew, 1992) proposes that CPV is an aggressive response to the stress and problems faced by young people in their social environment. Furthermore, the Social Learning Theory (Bandura (1973)) posits that CPV is a behavior that can be learned by young people through modeling by parents, siblings, or other peers. Similarly, Cottrell and Monk (2004) attempted to apply the Nested Ecological Theory to explain CPV, concluding that it can occur as a result of a combination of psychological, sociological, and cultural factors. Subsequently, Hong et al. (2012) generated the Social Ecology Theory, according to which CPV is produced by factors pertaining to the youth's microsystem (child maltreatment, parenting styles); mesosystem (influence of conflicting peers); exosystem (influence of media); macrosystem (socialization); and chronosystem (change in family structure). The present research focuses on the analysis of some risk factors that could lead to an increase in CPV rates, such as the use of violent video games, the pathological gaming or the justification of violence.

The theoretical underpinning for this research will be based on social learning theory, as it can explain how young people can learn violent behavior through social media, such as violent video games (Bandura (1973)). Social learning theory can also explain how the justification of violence, as a cognitive variable, may mediate the relationship between exposure to violent video games or pathological gaming and CPV. According to social learning theory, children may imitate the behaviors they observe from others, but they may also make cognitive inferences that lead to generalizing the behaviors they observe. Several authors have related the development of CPV to social learning theory (Contreras & Cano, 2014; Ibabe et al. (2013)). These authors indicate that children can learn violent behavior through modeling, not only from their parents but also from peers and social influences. Additionally, other authors suggest that this learning can become internalized as a part of the identity in adolescence (Papamichail & Bates, 2022). Per social cognitive theory, there are three interacting components that determine how behavioral learning can occur: contextual variables, personal cognitive variables, and behavioral outcomes. In the present research, the contextual variables studied will be exposure to violent video games and pathological gaming, the cognitive variable will be the justification of violence, and the behavioral outcome will be CPV.

Exposure to violence in video games and television

Previous research has shown an association between CPV and exposure to violence. Martín and Hernández (2020), for

example, conducted a study to investigate the relationship between exposure to violence and CPV in juvenile offenders. These authors found a relationship between the two variables, concluding that exposure to violence could occur in various settings, such as at home or in school. Similarly, Pereira and Bertino (2009), from the review of other studies, concluded that the multitude of violent messages in the media leads to the normalization of violence and its use to resolve conflicts, which could make up a social factor for the perpetration of CPV. On another hand, Brockmyer (2013) stated that exposure to violence in the media and video games can lead to the development of beliefs, attitudes, and aggressive behaviors, as well as to a greater desensitization to violence in general, with its consequent justification.

Today, scholars are engaged in a central discussion concerning the effects of violent video games and whether their use is linked to aggressive behavior. The General Aggression Model by Anderson and Bushman (2002) was one of the first theories arguing that repeated exposure to violent video games may lead to changes in aggression-related beliefs, attitudes, and behaviors. Their research concluded that violent video games increase physiological arousal, aggressive thoughts and feelings and aggressive behaviors, while decreasing prosocial behaviors. However, other authors hold a different perspective, arguing that violent video games do not actually increase aggression in young people (Ferguson et al., 2015; Przybylski & Weinstein, 2019). In support of this idea, Johannes et al. (2021) reported that young people who play video games for longer periods of time in the past few weeks tend to have a higher well-being. This finding is consistent with other authors who have identified a correlation between video game use and positive effects on mental health (Granic et al., 2014).

The significance of this discussion led the American Psychological Association (APA) to establish a Working Group on Violent Media in 2015, with the goal of investigating the association between violent video game and aggression. Their study concluded that violent video games indeed increase aggression while reducing prosocial behavior (American Psychological Association (2015)). However, more recently, Ferguson et al. (2020) re-examined this research and found that the evidence for the effects of violent video games on aggression was weak, with the exception of desensitization. The authors pointed out that recent meta-analyses show small effects on the relationship between violent video game use and aggression or reduced prosocial behavior, and the interpretation of these results as significant is questionable. In fact, they state that the results of many of the studies linking these variables may be explained by publication bias or questionable researcher practices. In the same vein, Drummond et al. (2020) conducted a meta-analysis involving 28 independent samples. The authors reported smaller effect sizes over longer longitudinal periods regarding the relationship between aggressive play content and aggression. Additionally, effects sizes were smaller in better-designed studies. Therefore, these authors reveal that longitudinal studies do not seem to find significant long-term relationships between aggressive game content and aggression in young people.

At the theoretical level, approaches to the effects of video games are very different. For example, there is research that relies on the displacement hypothesis to explain media effects and other studies that rely on theories of human motivation. These different approaches and contradictory findings make it difficult to build evidence. Second, previous research also raises methodological limitations in research on the negative effect of video games. The operationalization of video games is one of them. It is based on experiments that are designed to mimic game play but are not accurate in how game play occurs naturally. Moreover, studies on this topic are based on the use of self-reports, which are not objective measures of actual behavior. Also, studies tend to be cross-sectional, not addressing possible causal relationship. Finally, research usually uses a limited set of games, compromising generalizability to video games in general (Johannes et al., 2021; Przybylski & Weinstein, 2019; Vuorre et al., 2022). An example of the need for caution in such research is the study by Hilgard et al. (2017), who re-analysed meta-analytical data on this issue, bringing together results on GAM research. In their study they noted the existence of a publication bias. When adjusting for bias, the observed effect sizes were smaller than the original ones.

To date, despite growing interest in the relationship between violent video game consumption and violence, only the study of Ruiz-Fernández et al. (2021) has analyzed the relationship between video game consumption and CPV, finding that to the extent that the consumption of video games causes engagement in the player, then it was associated with higher levels of CPV. The ongoing controversy surrounding the relationship between the use of violent video games and violent behavior indicates a clear need for further research in this field.

Pathological gaming

Problematic gaming has typically been defined in the literature based on measures of pathological gambling. However, a variety of definitions and criteria have been used, leading to inconsistent estimates of the prevalence of problematic gaming (Desai et al., 2020). Following Lemmens et al. (2009), pathological gaming can be defined as excessive and compulsive use of computer or video games

that causes social or emotional problems to the extent that game users cannot control their use of the game.

Previous research has investigated the consequences of pathological gaming, finding a relationship with anxiety disorders, low self-esteem, decreased school performance, increased hostility, or decreased empathy and social skills (Desai et al., 2020; Lloret et al., 2013; Rehbein et al., 2010). In fact, Desai et al. (2020) found that adolescents with problematic gaming were more likely to be engaging in risk behaviors such as smoking, drug use, and violence, as well as more likely to report depression.

On the contrary, some research has noted that some previous research has made it is unclear whether there is a relationship between self-difficulties and pathological gaming (e.g., Van Rooij et al., 2018). In fact, some authors suggest the need to exercise caution when approaching any diagnostic assessment related to pathological gaming, as the quality of previous research in this area is considered to be low and there is still no consensus on the symptomatology and assessment of pathological gaming (Aarseth et al., 2017). Vuorre et al. (2022) state that current evidence on the negative effects of violent video game use may be inadequate.

However, in spite of the potential role of pathological gaming on adolescent psychological adjustment, to date no study has analyzed its potential relationship with the commission of child-to-parent violence. Thus, due to the controversial results of previous literature on the relationship of pathological gambling and pathological video-gaming with violence, the association between the two variables needs to be further investigated (Aarseth et al., 2017; Di Blasi et al., 2019; Johannes et al., 2021; Przybylski and Weinstein (2019); Rehbein et al., 2010).

Justification of violence

Continuing with social learning theory, one of the components that influence behavioral learning are personal cognitive variables. In the area of CPV, a cognitive risk factor that contributes to its development is the justification of violence, this is, the belief in the acceptance of violent behavior. Galán (2018) indicated that young people who are exposed to violence in different contexts may become desensitized to violence, and, therefore, normalize violent behavior.

In this line, Orue et al. (2019) state that CPV could be predicted by the social information processing components of aggressive response and anger, for example, the justification of violence. More recent studies find that exposure to domestic violence is positively associated with the justification of violence, and this, in turn, with CPV (Contreras et al., 2020; Junco-Guerrero et al., 2021). This implies that adolescents who commit CPV could normalize the use of violence, so they can more easily access aggressive responses and they consider aggression to be an appropriate conflict resolution strategy.

On the other hand, social cognitive theories, such as the General Aggression Model (Anderson & Bushman, 2002), emphasize the significance of cognitive components, including normative beliefs about aggression or aggressive scripts, which may contribute to an increase in aggressive behavior. In this context, Gilbert et al. (2013) examined the influence of three cognitive structures related to aggression (behavioral scripts, early maladaptive schemas, and normative beliefs), and found a positive association of violence-accepting beliefs with increased aggressive behavior.

Objectives

To date, numerous studies have tried to analyze the relationship between the use of violent video games and the development of violent behaviors, their results not being conclusive though. Conversely, some research has tried to study the relationship between pathological gaming and aggressive behavior. However, despite that violent video games have consistently been identified as the most popular among consumers (Dill et al. (2005)), to date no study has analyzed the influence of violence in video games and pathological gaming on CPV. On another hand, although some studies have found a relationship between the justification of violence and CPV perpetration, to date, no research has analyzed the role of video games in this context.

Therefore, the main objective of this study was to analyze, in a sample of secondary education students, the relationship of the exposure to violent video games, pathological video-gaming and justification of violence with the perpetration of Child-to-Parent Violence (CPV), controlling for the sex, educational level and violent TV exposure of the participant. All these relationships were analyzed both in the case of CPV against the mother and the father.

Based on prior research, we propose the following hypotheses:

Hypothesis 1 (H1). Regarding exposition to violence in videogames and CPV no specific hypothesis was made, due to the incongruent results in previous studies results regarding the association with aggressive behavior.

Hypothesis 2 (H2). Pathological gaming would be associated with higher levels of CPV.

Hypothesis 3 (H3). Justification of violence would be associated with higher levels of CPV.

Hypothesis 4 (H4). The exposure to violence on television would be associated with higher levels of CPV.

Method

Sampling method and study population

The current study follows a correlational and cross-sectional design and has been conducted in Málaga (Spain). The sample of this study consisted of 439 participants, 238 males, and 201 females, from 7 different centers of Secondary Education. All the participating centers were located in neighborhoods with a medium socioeconomic level, except for two of them, which belonged to a neighborhood with a medium-high socioeconomic level. Three centers were private subsidized schools, and four centers were public schools. Convenience sampling was employed because it provides easier access to the sample and implies a greater willingness of the participants to take part in the study.

Participants' ages ranged from 13 to 18 years ($M = 15.30$, $SD = 1.17$), with 147 of them (33.5%) aged 13 to 14, 205 (46.7%) aged 15 to 16, and 87 (19.8%) aged 17 to 18. Regarding how often they play video games, 121 adolescents (27.6%) play less than once a month, 62 (14.1%) play between once or 3 times a month, 92 (21%) play once or twice a week, 70 (15.9%) play three or four times a week, 27 (6.2%) play five or six times a week, and 67 (15.3%) play at least once a day. With respect to the marital status of the parents, most of them were married (69.4%), followed by those who were separated or divorced (21.9%). A smaller percentage cohabited without being married (4.8%), while in some cases, one or both parents were deceased (3.1%). Additionally, a small percentage represented single parents (0.5%) or adoptive parents (0.4%).

Measures

To obtain the sociodemographic data of the participants, a set of questions regarding the city of origin, sex, age, and school grade was included. A question on the marital status of the parents was also included. The measures used to evaluate the variables of interest for the study are described below:

Exposure or use of violent video games

This questionnaire was designed based on the items elaborated by Przybylski and Weinstein (2019). Participants had to indicate, on the one hand, the frequency with which they play video games, the names of the video games they have played in the last 6 months, and the number of hours played. On the other hand, they had to indicate the names of the three video games they have played the most in their whole life. In order to categorize these video games as non-violent or violent, the classification proposed by the European PEGI (Pan European Game Information; https://pegi.info) system was used. PEGI is a rating system used in more than 35 European countries, developed by the Interactive Software Federation of Europe (ISFE). The criteria followed to consider a participant as a violent video game player were as follows: (1) one of the video games described as the most played in their lifetime is either a video game suitable for over-18-year-olds or two video games suitable for over-16-year-olds; or (2) participants indicate that they have played violent video games for more than 50 h in the last 6 months, taking into account the age rating of the games (multiplying by 1 the number of hours in the case of games suitable for over-16-year-olds, and by 2 if the game is suitable for over-18-year-olds).

Cuestionario de Exposición a la Violencia (CEV, Exposure to Violence Questionnaire; Orue & Calvete, 2010)

This questionnaire has a total of 21 items, which evaluate exposure to violent behaviors in different contexts. Participants indicate the frequency with which violent actions have occurred in the different contexts. Each item is scored on a 5-point Likert-type scale ranging from 0 (*never*) to 4 (*every day*). In this case, only scores for violence exposure on television (e.g., "How often have you seen a person insult someone on TV?") were taken into account. In this study, Cronbach's alpha internal consistency coefficient for the Television Violence Exposure scale was 0.82.

Justification of Violence Subscale from the "Escala de Creencias Irracionales para Adolescentes" (ECIA; Adolescents' Irrational Belief Scale; Cardeñoso & Calvete, 2004)

This subscale consists of 9 items that evaluate the justification of the use of violence, that is, adolescents' approval of aggression in certain circumstances (e.g., "Sometimes they may hit us for our own good"). The items are rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*very much*). In the present study, Cronbach's alpha coefficient was 0.80.

Assessment of Pathological Computer-Gaming (AICA-S; Wölfling et al., 2010)

This 15-item scale assesses addicted video gaming behavior not quantified with the criteria of pure time spent playing, which is considered an important but not sufficient criterion, but also by means of further criteria such as craving, tolerance, and continued consumption. The items on the scale represent all the established criteria of pathological computer-gaming. Using patterns (e.g., "How many hours

do you spend playing on a day of the weekend?") and aspects of emotion regulation of video game behavior ("How often do you play to avoid negative feelings such as boredom and grief?") were included. The items are rated on a 5-point Likert scale or in an open answering pattern. For the purpose of the study, the 2 open-answer items ("How many hours do you play on an average weekday? "and "How many hours do you play on a day of the weekend?") were codified in a 1- to 4-point scale.

Child-to-Parent Aggression Questionnaire (CPAQ; Calvete et al., 2013)

This instrument assesses violence performed by adolescents against their parents. It consists of 20 parallel items: 10 referring to the mother, and 10 to the father. In each block of 10 items, 7 of them refer to psychological violence (e.g., "You yelled at your mother/father when you were angry"), and 3 to physical aggression (e.g., "You have pushed or hit your mother/father in a fight"). In addition to the items in the original questionnaire, an item was included to assess financial violence ("You have taken money from your father/mother without permission"). Participants should indicate how often they have committed these types of aggressions against their parents in the past year on a Likert scale ranging from 0 (*never, this has not happened in my relationship with my mother or father*) to 3 (*very often, it has occurred 6 times or more*). In the present study, Cronbach's alpha coefficients were 0.72 and 0.68 for physical violence against fathers and mothers, and 0.71 and 0.73 for psychological violence against fathers and mothers, respectively.

Procedure

First, the approval of the Ethical Committee of Experimentation of the University of Málaga was obtained, with registration number 44-2020-H. Permission was sought from the different schools to administer the survey within them. Thus, at each school, the first contact was held with the School Board and the Department of Educational Guidance, explaining the nature and objective of the research to obtain their consent. All the center Managers we contacted were willing to participate in the research. The questionnaire was applied in 7 centers in southern Spain.

To collect data, a self-administered questionnaire was distributed to the students after providing them with general information about the survey. To ensure student privacy, the participation was anonymous and voluntary. The participants were requested to give their informed consent and were informed that the completion of the questionnaire was strictly confidential and voluntary, so none of them should specify data that could identify them. All the students who were requested to participate were willing to do so. Parents were notified and given the option of refusing to allow their child's participation. None of the parents refused to allow their child to participate. The administration of the questionnaire was carried out in groups, in school classrooms or the assembly hall, leaving a space between the participants to avoid influence between classmates. The survey was conducted in the presence of a teacher, with two trained researchers administering it. They remained present in the classroom throughout the survey and readily addressed any doubts or queries that the participants had.

Data analysis

The statistical analyzes of the present ex post facto study were carried out using the statistical package SPSS (Statistical Package for Social Sciences), version 26. Multiple hierarchical linear regression analyses were used (with a probability for input F of $p = 0.05$ and output of $p = 0.10$), in order to analyze the relationship of violent video games, pathological video-gaming, justification of violence, sex, educational level, and violent TV exposure of the participant with CPV. Following the usual protocol (Cohen & Cohen, 1983), centered scores were used in order to avoid multicollinearity problems. Previously, a partial correlation matrix between the variables in the study, controlling for participants sex and academic level, was calculated to verify the pattern of relationships and to identify excessively high correlations between variables.

Data was made openly available at the repository osf.io: https://osf.io/6cb2y/?view_only=4c947e8ab61340b6ba556b591df71e23.

Results

Table 1 shows descriptive data on exposure to video games and television violence, pathological video-gaming, justification of violence, and CPV (psychological, physical, and economic, against both parents).

For this study, the CPV variables (psychological, physical, and financial) were combined into the variables total CPV against the mother and total CPV against the father. The partial correlation matrix between the variables in the study, controlling for participants sex and academic level, was calculated to verify the pattern of relationships, and to identify excessively high correlations between variables ($r > 0.90$; Kline, 2015), which indicate collinearity. As can be seen in Table 2, collinearity was not a problem. The pattern of correlations was as expected, -with a global relationship between pathological video-gaming, exposure to television violence, justification of violence, and violence against the mother and the father- with the exception of the exposure to violent videogames, which was not related to CPV towards mother nor father.

Table 1 Descriptive Statistics of Pathological Video-gaming, Violence Justification, Violent TV Exposure, and Child-to-parent Violence

Variable		*M*	SD	Min.	Max.	Skewness	Kurtosis	*N*
Pathological video-gaming		1.61	2.54	0	21	3.09	14.02	439
Voilence justification		25.78	8.01	12	60	1.04	1.56	437
Violent TV exposure		7.55	3.21	0	12	−0.56	−0.48	439
	Psychological	3.70	3.21	0	18	1.33	2.05	431
CPV Mother	Physical	0.09	0.56	0	9	10.78	150.72	434
	Financial	0.37	0.74	0	3	2.12	3.96	433
	Psychological	3.23	3	0	14	1.23	1.50	425
CPV Father	Physical	0.07	0.37	0	4	6.06	44.80	427
	Financial	0.27	0.64	0	3	2.65	6.88	427

Table 2 Partial Correlations of the Variables of the Study, Controlling for the Sex and Academic Level of the Participants

Variable	1.	2.	3.	4.	5.	6.
1. Violent Videogames						
2. Violence Justification	0.122*					
3. Violent TV Exposure	−0.017	0.180***				
4. Pathological Video-Gaming	0.153***	0.191***	0.116*			
5. CPV Against Mother	0.03	0.431***	0.183***	0.192***		
6. CPV Against Father	−0.004	0.324***	0.161***	0.213***	0.753***	

*$p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

Table 3 Regression Analysis of CPV Towards Mother as a Function of Violent Videogames Exposure, Violence Justification and Pathological Video-gaming, Controlling for Sex, Academic Level and Violent TV Exposure

Variable	R^2	*F*	β	*t*
	0.23	21.102***		
Sex			0.14	2.80**
Academic Level			0.13	2.94**
Violent TV Exposure			0.10	2.30*
Violent Videogames			−0.04	−0.83
Violence Justification			0.39	8.89***
Pathological Video-Gaming			0.12	2.61**

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$

Table 4 Regression Analysis of CPV Towards Father as a Function of Violent Videogames Exposure, Violence Justification and Pathological Video-gaming, Controlling for Sex, Academic Level and Violent TV Exposure

Variable	R^2	*F*	β	*t*
	0.15	12.202***		
Sex			0.04	0.80
Academic Level			0.04	0.91
Violent TV Exposure			0.10	2.09*
Violent Videogames			−0.07	−1.31
Violence Justification			0.30	6.43***
Pathological Video-Gaming			0.16	3.26***

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$

In order to analyze the proportion of variance explained by each variable, an analysis of the CPV predictor variables was performed using 2 linear multi-step regressions for total CPV, towards the father and total CPV towards the mother. In a first step, the control variables (sex, the academic level of the participant, and exposure to violent TV) were introduced and, in a second step, the violent videogames exposure, pathological video-gaming and violence justification variables Tables 3, 4.

In relation to the total CPV towards the mother, results yielded a multiple linear regression model with $R^2 = 0.23$, F (6, 419) = 21.10, $p < 0.001$. This model shows a relationship of participant sex ($\beta = 0.14$, $p < 0.01$), academic level ($\beta = 0.13$, $p < 0.01$), violence justification ($\beta = 0.39$, $p < 0.001$), and pathological video-gaming ($\beta = 0.12$, $p < 0.01$) with the total CPV towards the mother. However, a relationship between violent videogames exposure and CPV towards mother wasn´t found ($\beta = -0.04$, $p < 0.403$). Although the relationship with violent TV exposure was statiscally significant, its effect size was too small ($\beta = 0.10$, $p < 0.05$) (Ferguson & Heene, 2021).

In relation to the total CPV towards the mother, results yielded a multiple linear regression model with $R^2 = 0.15$, F (6, 414) = 12.20, $p < 0.001$. This model shows a relationship of violence justification ($\beta = 0.30$, $p < 0.001$) and pathological video-gaming ($\beta = 0.16$, $p < 0.001$) with the total CPV towards the father. However, the relationships of participants sex ($\beta = 0.04$, $p < 0.423$), academic level ($\beta = 0.04$, $p < 0.360$) and

violent videogames exposure ($\beta = -0.07$, $p < 0.191$) with CPV towards father weren´t significant. Again, in spite of the relationship with violent TV exposure being statiscally significant, its effect size was too small ($\beta = 0.10$, $p < 0.05$).

Discussion

The present study contributes to increase the knowledge about CPV, a growing type of intrafamilial violence in our society, analyzing the relationship between this type of violence and various variables that could be as risk factors for its development. The main objective of the study was to analyze the associations of the exposure to violent video games, pathological video-gaming, and justification of violence with the perpetration of Child-to-Parent Violence (CPV) against the father and the mother, controlling for the sex, educational level, and violent TV exposure of the participant.

Regarding the first hypothesis proposed in the study, the results do not suggest the existence of a relationship between exposure to violence in video games and levels of CPV. These results are in line with previous research, which suggests that exposure to violent video games does not lead to an increasement of violence behavior in young people, and even link such exposure to increased well-being (Ferguson et al., 2015; Johannes et al., 2021; Przybylski & Weinstein, 2019). In fact, a research of Beerthuizen et al. (2017) in which they analyzed the effects of the launching of a specific video game (*Grand Theft Auto V*), found a decrease in juvenile delinquency records in the Netherlands between 2012 and 2014, obtained from the Dutch Offenders Index (DOI) and the Public Prosecutor's Services (PPS). However, other studies have found that exposure to violent video games can be associated with an increase of aggressive thoughts and feelings and aggressive behaviors while decreasing prosocial behaviors (Anderson & Bushman, 2001; Romanchych (2018); Shao and Wang (2019)). Therefore, we are facing a little-explored topic in which contradictory data are found, in addition to a shortage of studies referring to the effects on CPV in particular. This emphasizes the necessity for additional research on the relationship between exposure to violent video games and violent behavior, as well as the requirement for longitudinal studies that can establish causal relationships.

With regard to the second hypothesis (H2. Pathological gaming would be associated with higher levels of CPV), the results show a significant relationship of pathological gaming with CPV committed against both the mother and the father. However, the fact that the effect sizes found were small ($\beta = 0.12$ and $\beta = 0.16$ regarding CPV towards mother and father respectively) requires interpreting these results with caution. These findings align with those found by authors such as Vara (2017) regarding general aggressiveness. Vara (2017), for example, confirmed the hypothesis of the relationship between pathological gaming and aggressiveness in secondary school students in Peru. However, due to the controversial results of previous literature on the relationship between pathological gambling and violence, the association between the two variables needs to be further investigated (Aarseth et al., 2017; Di Blasi et al., 2019; Johannes et al., 2021; Przybylski & Weinstein, 2019; Rehbein et al., 2010).

With regard to the third hypothesis of the study (H3: The justification of violence would be associated with higher levels of CPV), this relationship is suggested by results. A significant relationship was found with CPV against both the mother and the father. These data are consistent with the research of Junco-Guerrero et al. (2021) in which children who justified hostile behaviors were found to commit higher rates of CPV. In this line, some studies suggest that CPV could be predicted by the social information processing components, for example, the justification of violence (Orue et al., 2019).

Finally, regarding the fourth hypothesis (H4: The exposure to violence on television would be associated with higher levels of CPV), the existence of a relationship of TV exposure with CPV committed against the mother and father wasn´t supported by our data. This finding contradicts several studies showing that television violence has a direct effect on the learning and acquisition of hostile behaviors, as well as desensitization to violence, which is perceived as being socially accepted and habitual (Orue & Calvete, 2012). Fitzpatrick et al. (2016) also suggest that exposure to violence, especially in the case of television, during the preschool years is a risk factor for the development of aggressive behaviors.

This research presents some limitations that should be taken into account. The main limitation is the correlational nature of the study. The findings of the present study should be replicated through longitudinal designs, which would allow examining the directions and strength of causal relationships. In addition, the sample is limited to a single informant from the Andalusian region, which could compromise the generalization of the results. It would also be important to carry out future studies that include other informants, such as parents or educators. Finally, in this research, we make inferences about the consequences of video game playing on the adolescent population as a whole. But specific groups of players who share factors associated with the use of technology, such as material deprivation, may be influenced differently by video game use.

Conclusions and Implications

Despite the previous limitations, this study contributes to increasing knowledge about CPV in general and, specifically, the variables that could be associated with this phenomenon. Therefore, it provides valuable information for the prevention

of this type of violence. Although much research has analyzed the influence of video games, almost no study had done so to date in the context of CPV. In this research, we found that the exposure to violent in video games is not associated with CPV rates. However, we found a significant relationship between pathological gaming and CPV committed against both parents. This could imply that the impact of exposure to video games on CPV varies depending on the presence of pathological gaming, but not on violent video games consumption per se. However, the fact that the strength of the relationships found between pathological gaming and CPV is not very high suggests the existence of other variables that undoubtedly also play a role in the origin of CPV. For example, recent studies have shown that violent behavior has significant biological, evolutionary, and genetic origins (Ferguson & Beaver, 2009).

Therefore, considering the ongoing debate about the relationship between exposure to general and violent video games with violent behavior, it becomes essential to conduct research that can test causal relationships between these variables. As this study is of a correlational nature, it is not possible to draw such conclusions. In addition, the results also show a significant relationship of justification of violence and CPV committed against both parents.

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Compliance with ethical standards

Conflict of interest The authors declare no competing interests.

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