Article

Use of Highly Violent Video Games (PEGI 18) in Early Adolescence: Gender and Psychosocial Differences Between Players and Non-Players

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ABSTRACT

Background: Previous evidence suggests that playing violent video games increases desensitization, decreases empathy, and increases aggression, especially among minors. The present study has two main objectives: a) to analyze the consumption of highly violent video games (PEGI 18) in a sample of preadolescents from Asturias (Spain); and b) to analyze possible psychosocial and gender differences between those who play PEGI 18 video games and those who do not. **Method:** The study included 568 sixth-grade students (ages 10-13) from 15 schools in Asturias. A self-report questionnaire was administered, which included a question asking participants to list up to three video games they had played the most during the academic year; a shortened version of the Children and Adolescents´ Assessment System (SENA); and an additional empathy scale. **Results:** The vast majority of participants reported playing video games, mostly age-appropriate ones, although a significant percentage, especially boys, played PEGI 18 games. In the sample as a whole, those who played PEGI 18 video games scored higher in aggression. Among boys, those who played PEGI 18 games scored lower in empathy, anxiety, social anxiety, and perceived family relationship problems, and higher in integration and social competence, as well as in defiant behavior. Among girls, those who played PEGI 18 games reported a greater presence of family relationship problems. **Conclusion:** The theoretical and practical implications of these results are discussed.

Uso de Videojuegos Altamente Violentos (PEGI 18) en la Adolescencia Temprana: Diferencias de Género y Psicosociales entre Jugadores y No Jugadores

ABSTRACT

Antecedentes: La evidencia previa sugiere que jugar a videojuegos violentos incrementa la desensibilización, disminuye la empatía y aumenta la agresividad, sobre todo en menores. El presente trabajo parte de dos objetivos: a) analizar el consumo de videojuegos altamente violentos (PEGI 18) en una muestra de preadolescentes de Asturias (España); y b) analizar posibles diferencias psicosociales y de género entre quienes juegan a videojuegos PEGI 18 y quienes no. **Método:** Participaron en el estudio 568 estudiantes de 6º de Educación Primaria (10-13 años), pertenecientes a 15 colegios de Asturias. Se aplicó un cuestionario de autoinforme compuesto por una pregunta en la que se les solicitó que mencionasen hasta tres videojuegos a los que más habían jugado durante ese curso académico; una versión abreviada del Sistema de Evaluación de Niños y Adolescentes (SENA); y una escala adicional de empatía. **Resultados:** La gran mayoría de los participantes juega a videojuegos, mayoritariamente acordes a su edad, si bien un porcentaje significativo juega a videojuegos PEGI 18, sobre todo chicos. En el conjunto de la muestra, quienes juegan a videojuegos PEGI 18 puntúan más alto en agresividad. En los chicos, quienes juegan a videojuegos PEGI 18 puntúan más bajo en empatía, ansiedad, ansiedad social y problemas percibidos en las relaciones familiares; y más alto en integración y competencia social, así como en conducta desafiante. En las chicas, quienes juegan a videojuegos PEGI 18 informan de una mayor presencia de problemas en las relaciones familiares. **Conclusiones:** Se discuten las implicaciones teóricas y prácticas de estos resultados.

Introduction

The use of video games is increasingly widespread, not only among young people but also among adults and even young children. In Spain, the number of video game players has risen in recent years. It is estimated that more than 22 million people play video games, with use being especially widespread among minors: 84% of children aged 6 to 10 and 91% of those aged 11 to 14 play video games. Video game use is not only a form of entertainment and escapism but also has significant potential for user socialization and the development of skills and attitudes, in addition to being a powerful industry with growing revenues (Asociación Española de Videojuegos, 2025).

The effect of video games on players' behavior and social and cognitive development is a controversial topic. On the one hand, some research provides evidence of positive effects of video game use. For example, being a habitual "action video game" player has been associated with benefits in cognitive skills, such as perception, spatial cognition, and top-down attention (Bediou et al., 2018). Multiplayer video games have been found to have positive effects on the maintenance of interpersonal relationships (Perry et al., 2018), and, when played cooperatively with others, they also have beneficial effects on readiness to help and share (Shoshani & Krauskopf, 2021). "Move games" have been associated with improved physical activity (Katara et al., 2024). The potential of "serious games" for learning content, skills, and attitudes has also been highlighted. They allow for training in risk assessment, problem-solving skills, time management skills, and decision-making, in professions such as nursing and medicine (Reynaldo et al., 2021). Health-oriented serious games positively influence health behaviors, physical activity, dietary choices, and mental health (for example, games aimed at training anxiety management) (Katara et al., 2024).

On the other hand, there is research that provides evidence of negative effects, mainly related to abusive use (Limone et al., 2023) and possible exposure to inappropriate content. Regarding the latter, one type of inappropriate content that has been analyzed is violent content. There was already evidence that exposure to violent content through films or TV can increase the likelihood of aggressive attitudes or behaviors (Martins & Weaver, 2019), so it would be plausible to think that violent video games may be even more problematic, since the user plays a more active role, the game demands constant attention, the experience is more immersive, and violent behavior is rewarded (Bushman et al., 2018; Fischer et al., 2011; Kolek et al., 2023; Wilson, 2008). In general terms, and although there are differing conclusions among various meta-analyses (Drummond et al., 2020), there is considerable consensus in concluding that playing violent video games has a significant impact —albeit of small magnitude, like other predictive variables— on increased aggressive behavior, cognitions, and affect, increased desensitization, decreased empathy, and increased physiological arousal (Anderson et al., 2010; Burkhardt & Lenhard, 2022; Calvert et al., 2017; Mathur & VanderWeele, 2019; Prescott et al., 2018). This negative effect has been found to be greater in minors than in young people or adults (Burkhardt & Lenhard, 2022; Kolek et al., 2023), supporting the importance of an age rating system for video games.

The negative impact of violent video games on aggressive attitudes and behaviors depends on multiple variables, both related to the observer (the video gamer) and the observed model. Regarding observer-related variables, those related to empathy have been highlighted, such as moral disengagement, referring to moral justification and diffusion of responsibility (Teng et al., 2019). Playing video games with narratives involving immoral actions can generate feelings of guilt and shame in players (Mahood & Hanus, 2017), and this mechanism can mitigate those negative feelings. Regarding variables related to the observed model, the impact of video games increases, among other factors, if exposure to violence is repeated, which promotes habituation and desensitization (Bushman et al., 2018); if the observed model is attractive; if aggression is presented humorously (Wilson, 2008); or if the player uses their own personalized game character and designates its physical attributes (Fischer et al., 2010), which makes the player more self-activated (awake, attentive, active, upset, and motivated).

Given the potentially negative effects of violent video game use, especially among minors, it is important to identify the characteristics of those who play these types of games in order to understand the problem and facilitate its management. Studies analyzing this issue are scarce and generally focus on adult players. The most analyzed and consistent variable is gender: being male increases the likelihood of playing violent video games (Bonnaire & Conan, 2024; DeCamp, 2017; Hartmann et al., 2015; Kasumovic et al., 2015; Lemmens et al., 2006). Among psychological traits, individuals who are less agreeable, more open, more extroverted, and less neurotic are more likely to play violent video games (Chory & Goodboy, 2011). Anxiety (feeling afraid, nervous, or sad) is associated with a lower likelihood of playing violent video games (DeCamp, 2017). Aggressiveness (Lemmens et al., 2006) and low empathy (Hartmann et al., 2015; Lemmens et al., 2006) are risk factors for playing these types of games. It has even been associated with sadism, which involves deriving pleasure from causing harm, in this case, virtual harm (Greitemeyer et al., 2019). Being respectful of rules decreases the likelihood of playing (DeCamp, 2017). Other risk factors include low emotional intensity, characterized by a low tendency to feel negative emotions (fear, sadness, anxiety) intensely and to react to them (Bonnaire & Conan, 2024).

Context also plays an important role, especially the family environment in minors. In this sense, it has been found that playing violent video games is more likely in stressful family contexts, such as those in which the father lost his job, a family member was recently in jail/prison, or the family moved frequently (DeCamp, 2017). It is also related to parenting style. It has been found that playing violent video games is less likely in families where parents are interested in their children's activities, talk to them about things that matter, monitor their Internet or phone use, listen to them, enforce rules, or know what the youth does (DeCamp, 2017). Parents acting authoritatively correspond to lower odds of violent game play, whereas more permissive, parent-as-friend styles correspond to higher odds (DeCamp, 2017). For example, youth who reported regularly wearing their seat belts in cars were less likely to play violent video games, which relates both to children obeying rules and to parents establishing and supervising rules (DeCamp, 2017). It has also been found that living with their mothers (maternal role model) is associated with lower odds of playing video games, especially among those who reported an older age for their mother (DeCamp, 2017).

In summary, the evidence found so far suggests the existence of a violent cycle, in which certain personal characteristics such as aggressiveness or low empathy increase the likelihood of playing violent video games, and in turn, playing these types of games has a negative effect on aggressiveness and empathy. Hence the importance of identifying relevant variables that differentiate those who play these types of video games at an early age from those who do not, as a basis for preventing this cycle. Among the few studies that have tried to analyze this, most have focused on adults. Very few studies have analyzed the characteristics of underage violent video game players.

Therefore, the present study has two objectives. First, to analyze video game use in a sample of preadolescents from Asturias (Spain), identifying which types of video games are most popular according to their PEGI rating and the prevalence of PEGI 18 video game use in the sample analyzed. Second, to analyze the psychosocial characteristics that differentiate preadolescents who play PEGI 18 video games from those who do not. For both objectives, possible gender differences will be analyzed. Regarding the first objective, it is expected that most of the sample will play video games, that the games they play will mostly be age-appropriate, but also that a significant percentage of preadolescents will play PEGI 18 video games, especially boys. Regarding the second objective, it is expected that PEGI 18 video game users will have a profile characterized by aggressiveness, low empathy, low anxiety, a tendency not to respect rules, good peer acceptance, and a stressful or permissive family context.

Methods

Participants

A total of 568 sixth-grade Primary Education students (50.4% girls), aged between 10 and 13 years ($M = 11.34$; $SD = 0.55$), participated in the study. The participants were from 15 schools, randomly selected from all publicly funded primary education centers in Asturias (Spain). In Asturias, these schools represent 97.9% of all primary education centers. Of the 15 selected schools, 12 were public (80%) and 3 were publicly funded private schools (20%), percentages similar to those found in the overall distribution of publicly funded schools in Asturias (82.1% public and 17.9% publicly funded private).

To obtain the student sample, a one-stage cluster probability sampling method was used: 15 schools were randomly selected from all primary education centers in Asturias, and within each selected school, all sixth-grade students who agreed to participate in the study were assessed.

Measurement Instruments

Sociodemographic Variables

Participants were asked about their age (open-ended question) and sex (dichotomous question: male/female).

Video Game Use

Video game use was assessed with the question: "¿A qué videojuegos (de cualquier tipo) has jugado recientemente (durante este curso)? (Escribe el título de hasta tres)" ["Which video games (of any type) have you played recently (during this school year)? (Write the titles of up to three)"]. The response was open-ended, providing three spaces for participants to write the title of one video game in each space. Once the responses were collected, the research team categorized each video game according to its minimum recommended age based on its PEGI rating (Table 1).

Table 1

PEGI (Pan European Game Information) Video Game Rating System. Adapted from www.pegi.info

Age label	Content
PEGI 3	Suitable content for all age groups. The game should not contain sounds or images that may frighten young children. Very mild forms of violence (in a comical context or a childlike setting) are acceptable. No bad language should be heard.
PEGI 7	Content with scenes or sounds that may frighten young children. It may include very mild forms of violence (implied, non-detailed, or non-realistic violence).
PEGI 12	Video games that show slightly more graphic violence towards fantasy characters or non-realistic violence towards human-like characters. There may be sexual innuendo or sexual posturing, while any bad language in this category must be mild.
PEGI 16	Violence (or sexual activity) reaches a stage that looks the same as would be expected in real life. The use of bad language can be more extreme, while the use of tobacco, alcohol or illegal drugs can also be present.
PEGI 18	Gross violence, apparently motiveless killing, or violence towards defenceless characters. Glamorisation of the use of illegal drugs and of the simulation of gambling, and explicit sexual activity.

Psychosocial Variables

A shortened version of the self-report for children aged 8 to 12 from the *Children and Adolescents' Assessment System* (SENA; Fernández-Pinto et al., 2015) was used. The original version consists of 134 items with a five-point Likert response format, ranging from 1 = Never to 5 = Always or almost always. For this study, a shortened version was used, in which all the self-report scales were retained but the number of items was reduced to 70. Some items were removed because they were considered less relevant for a non-clinical population. Other were removed based on their lower factor loadings compared to the retained items, as observed in previous applications of the questionnaire by the research team.

Internalized Problems Scales

- *Anxiety*. Comprised of four SENA items (25, 64, 82, and 124) ($α = .787$). The possible score range is therefore 4 to 20 points. High scores indicate the presence of anxiety symptoms, such as fear of making mistakes, worries, or recurring feelings of overwhelm or distress.
- *Social Anxiety*. Comprised of five SENA items (5, 16, 37, 87, and 98) ($α = .768$). Score range: 5 to 25 points. High scores indicate the presence of social anxiety symptoms, such as discomfort, embarrassment, nervousness, or fear of being ridiculed in social situations.

- *Depression*. Comprised of five SENA items (29, 47, 50, 108, and 125) (α = .850). Score range: 5 to 25 points. High scores indicate the presence of depressive symptoms, such as a sad mood, feelings of loneliness, and worthlessness.
- *Post-traumatic Symptomatology*. Comprised of three SENA items (11, 43, and 107) (α = .534). The possible score range is 3 to 15 points. High scores indicate possible experience, exposure, or knowledge of a traumatic event that induces a high level of stress and a perception of danger, whether real or perceived as a threat.
- *Somatic Complaints*. Comprised of five SENA items (15, 28, 42, 83, and 119) (α = .720). Score range: 5 to 25 points. High scores indicate the presence of physical discomforts of possible psychological origin, such as pain, fatigue, or sleep problems.

Externalized Problems Scales

- *Attention Problems*. Comprised of five SENA items (6, 9, 45, 55, and 127) (α = .808). The possible score range is 5 to 25 points. A high score on this scale indicates that the respondent has difficulty maintaining, regulating, and directing their attention.
- *Hyperactivity-Impulsivity*. Comprised of five SENA items (12, 38, 67, 111, and 131) (α = .703). Score range: 5 to 25 points. A high score indicates that the respondent shows excessive motor activity, accompanied by difficulties in inhibiting their behavior and responding reflectively.
- *Anger Control Problems*. Comprised of four SENA items (44, 70, 100, and 116) (α = .777). The possible score range is 4 to 20 points. A high score indicates that the respondent loses control when angry, exhibiting behaviors such as shouting, hitting, slamming doors, or throwing or breaking things.
- *Aggression*. Comprised of five SENA items (34, 53, 84, 120, and 126) (α = .638). Score range: 5 to 25 points. A high score indicates the presence of interpersonal aggression behaviors, such as teasing for fun, intentionally breaking or damaging others' belongings, insults, threats, or physical aggression.
- *Defiant Behavior*. Comprised of four SENA items (40, 76, 104, and 128) (α = .746). Score range: 4 to 20 points. High scores indicate the presence of disobedient and oppositional behavior toward authority and parental rules.

Contextual Problems

- *Family Relationship Problems*. Comprised of three SENA items (8, 122, and 132) (α = .625), which are reverse-scored compared to the other items in the original scale, which were eliminated. Thus, low scores indicate problems in the respondent's family relationships, while high scores indicate a good perceived relationship with the family, characterized by support and affection. The possible score range for this scale is 3 to 15 points.
- *School Disengagement Problems*. Comprised of three SENA items (21, 73, and 94) (α = .764). Score range: 3 to 15 points. High scores indicate dissatisfaction with schoolwork and school in general.

- *Problems with Schoolmates*. Comprised of five SENA items (18, 71, 86, 99, and 117) (α = .827). Score range: 5 to 25 points. High scores indicate that the respondent perceives themselves as being mistreated by classmates at school, being ignored, or being a victim of insults, teasing, or physical aggression.

Vulnerabilities Scales

- *Emotional Regulation Problems*. Comprised of five SENA items (31, 41, 56, 63, and 95) (α = .856). Score range: 5 to 25 points. High scores indicate difficulties in understanding and controlling emotions, manifested in frequent and abrupt mood changes.

Personal Resources

- *Self-esteem*. Comprised of four SENA items (1, 20, 52, and 133) (α = .864). Score range: 4 to 20 points. High scores indicate that the respondent likes themselves as they are and is satisfied with themselves.
- *Integration and Social Competence*. Comprised of five SENA items (36, 60, 68, 92, and 109) (α = .727). Score range: 5 to 25 points. High scores indicate that the respondent feels well integrated with peers, is included in academic or leisure activities, gets along well with others, and makes new friends easily.

Empathy

In addition to the SENA scales, an empathy scale used in previous studies (Álvarez-García et al., 2021) was also administered. It consists of six items about the extent to which a respondent believes they are capable of identifying with others and sharing their feelings. Students are asked how true they think each statement is, using a Likert-type response (from 1 = *completely false*, to 4 = *completely true*). The internal consistency of the scores in our sample was moderate (α = .615).

Procedure

Authorization was requested from the management teams of the selected schools to administer the scale in their respective centers. They were informed about the objectives and procedures of the study, as well as the anonymous and voluntary nature of participation for students. Given that the students to be assessed were minors, informed consent was obtained from their families. The students were assessed during the 2020/2021 academic year, specifically in February and March 2021. The questionnaires were administered in paper format during school hours by members of the research team, in the classroom. At the time of questionnaire administration, students were also informed about the anonymous, confidential, and voluntary nature of the survey. This study is part of a broader project approved by the Research Ethics Committee of the Principality of Asturias (Project Ref. 105/19).

Data Analysis

First, video game use among study participants was analyzed, identifying which types of video games are most popular according to their PEGI rating, as well as the prevalence of PEGI 18 video

game use in the analyzed sample. For this purpose, frequencies and percentages were calculated. To analyze the possible association between PEGI 18 video game use and gender, the chi-square statistic was used, along with Cramér's V as a measure of the strength of the association.

Second, the psychosocial characteristics of preadolescents who play PEGI 18 video games were analyzed. To do this, possible differences between boys and girls in the psychosocial variables were first examined using MANOVA. Since significant differences were found between boys and girls in the analyzed variables, and since previous analyses had also found significant gender differences in PEGI 18 video game use, MANOVA was used to examine possible differences between PEGI 18 video game users and non-users in the psychosocial variables, both in the total sample and separately by gender.

All analyses were performed using SPSS statistical software version 28.0.

Results

Video Game Use According to Minimum Recommended Age

In response to the question "Which video games (of any type) have you played recently (during this school year)? (Write the titles of up to three)", a total of 1,255 responses were obtained, mentioning 125 different games. However, most of the references are concentrated in a small number of video games. Thus, the 10 most frequently mentioned video games by the entire sample (which make up 8.0% of the total 125 games mentioned by participants) were cited 956 times, accounting for 76.2% of all 1,255 responses. Most of the most popular games are appropriate for the participants' age. An analysis of the 10 most popular games (Table 2) shows that most are PEGI 7, although the most popular one is PEGI 12. Nevertheless, one PEGI 18 video game —two in the case of boys— appears on the list, despite not being suitable for minors.

Table 2
The 10 Most Popular Video Games: Minimum Recommended Age, and Number and Percentage of Students Mentioning Them

	Total (N = 568)				Boys (n = 282)				Girls (n = 286)			
Order	Video Game	PEGI	*f*	%	Video Game	PEGI	*f*	%	Video Game	PEGI	*f*	%
1	Fortnite	12	269	47.4	Fortnite	12	175	62.1	Roblox	7	107	37.4
2	Roblox	7	140	24.6	Minecraft	7	79	28.0	Fortnite	12	94	32.9
3	Minecraft	7	126	22.2	FIFA	3	68	24.1	Among Us	7	88	30.8
4	Among Us	7	123	21.7	Grand Theft Auto	18	48	17.0	Minecraft	7	47	16.4
5	FIFA	3	77	13.6	Rocket League	3	46	16.3	Animal Crossing	3	29	10.1
6	Grand Theft Auto	18	58	10.2	Among Us	7	35	12.4	Super Mario	3/7	23	8.0
7	Rocket League	3	56	9.9	Roblox	7	33	11.7	Brawl Stars	7	16	5.6
8	Brawl Stars	7	42	7.4	Brawl Stars	7	26	9.2	Just dance	3	12	4.2
9	Animal Crossing	3	36	6.3	Call of Duty	18	21	7.4	Grand Theft Auto	18	10	3.5
10	Super Mario	3/7	36	6.3	Super Mario	3/7	13	4.6	Rocket League	3	10	3.5

Note. PEGI = Pan European Game Information (Minimum recommended age).

An analysis of the number of video games mentioned in each PEGI category, as well as the number of times they are mentioned, shows that as the minimum recommended age increases, the variety of video games played decreases; and that the most popular video games among the analyzed sample are PEGI 7 (Table 3).

Table 3
Number of Video Games Mentioned and Number of Mentions in Each PEGI Category

	Video Games		Mentions	
	f	%	*f*	%
PEGI 3	45	36.0	266	21.2
PEGI 7	26	20.8	512	40.8
PEGI 12	22	17.6	331	26.4
PEGI 16	18	14.4	45	3.6
PEGI 18	14	11.2	101	8.0
Total	**125**	**100**	**1255**	**100**

Note. PEGI = Pan European Game Information (Minimum recommended age).

Although students generally mention video games appropriate for their age, a significant percentage report having recently played video games not recommended for their age (Tables 2 and 3). Focusing on video games not recommended for minors (PEGI 18) (Table 4), a significant proportion of the participants—reaching 25.5% among boys—report having recently played games in this category, either exclusively or, more commonly, alongside other games with lower recommended ages. The use of video games rated for adults is statistically significantly associated with the sex of the preadolescents evaluated ($\chi^2 = 44.68$; $p < .001$; Cramér's $V = .280$). More boys than girls report having recently played adult-content video games (PEGI 18).

Among PEGI 18 video games, the most popular ones for both boys and girls are Grand Theft Auto and Call of Duty. In the entire sample, these two games together account for 88 mentions by the participants, representing 87.1% of all references to PEGI 18 video games (Table 5). For girls, not only are fewer of them playing these games, but their play is even more concentrated on these two titles compared to boys, who play a wider variety of PEGI 18 video games.

Table 4

Prevalence of PEGI 18 Video Game Use

	Total (N = 568)		Boys (n = 282)		Girls (n = 286)	
	f	%	f	%	f	%
Does not mention any video games	38	6.7	9	3.2	29	10.1
All below PEGI 18	439	77.3	201	71.3	238	83.2
At least one PEGI 18	88	15.5	70	24.8	18	6.3
All PEGI 18	3	0.5	2	0.7	1	0.3

Note. PEGI = Pan European Game Information (Minimum recommended age).

Psychosocial Characteristics of Preadolescents Who Play PEGI 18 Video Games

In the analyzed sample, there are statistically significant gender differences in the psychosocial variables examined in relation to PEGI 18 video game use (Pillai's Trace = .132; $F_{17,550}$ = 4.905; p < .001; m_p^2 = .132). More specifically (Table 6), girls score higher in anxiety, social anxiety, depression, post-traumatic symptomatology, somatic complaints, and emotional regulation problems, as well as lower in self-esteem, compared to boys. Boys score higher in aggression and school disengagement problems, and lower in empathy, compared to girls. Therefore, since gender has a significant effect both on the type of video games played and on the psychosocial variables analyzed, the possible effect of playing PEGI 18 video games on differences in the psychosocial variables was analyzed separately for boys and girls.

In the overall sample analyzed, there are statistically significant differences in the psychosocial variables studied depending on whether or not participants play PEGI 18 video games (Pillai's Trace = .066; $F_{17,550}$ = 2.309; p = .002; m_p^2 = .066). However, the effect of playing this type of video game on these variables differs notably between boys and girls. Among boys, playing PEGI 18 video games has a statistically significant and large effect on the set of psychosocial variables analyzed (Pillai's Trace = .141; $F_{17,264}$ = 2.550; p = .001; m_p^2 = .141). In contrast, among girls, the effect is smaller and does not reach statistical significance (Pillai's Trace = .053; $F_{17,268}$ = 0.882; p = .596; m_p^2 = .053).

More specifically (Table 7), among boys, those who play PEGI 18 video games score lower in anxiety, social anxiety, and empathy, and higher in integration and social competence, defiant behavior, and family relationship problems (which are reverse-scored, indicating a better perceived family environment). Among girls, the only statistically significant difference is in family relationship problems, where those who play PEGI 18 video games have lower scores, indicating a greater perceived presence of family problems.

Discussion

This study was based on two objectives. The first was to analyze video game use in a sample of Spanish preadolescents, identifying which types of video games are most popular according to their PEGI rating and the prevalence of PEGI 18 video game use. As expected, the vast majority of the sample plays video games, and the games they play are mostly age-appropriate. However, a significant percentage of preadolescents play PEGI 18 video games, especially boys. The greater tendency for boys compared to girls to play violent video games has been consistently found in previous

Table 5

The 14 PEGI 18 Video Games Mentioned, by Popularity Order: Number and Percentage of Students Mentioning Each

Order	Total (N = 568)			Order	Boys (n = 282)			Order	Girls (n = 286)		
	Video Games	f	%		Video Games	f	%		Video Games	f	%
1	Grand Theft Auto	58	10.2	1	Grand Theft Auto	48	17.0	1	Grand Theft Auto	10	3.5
2	Call of Duty	30	5.3	2	Call of Duty	21	7.4	2	Call of Duty	9	3.1
3	Red Dead Redemption	2	0.4	3	Red Dead Redemption	2	0.7	3	Ghost Recon	1	0.3
4	Attack on Titan	1	0.2	4	Attack on Titan	1	0.4				
4	Cyberpunk	1	0.2	4	Cyberpunk	1	0.4				
4	Counter-Strike: Global Offensive	1	0.2	4	Counter-Strike: Global Offensive	1	0.4				
4	Days Gone	1	0.2	4	Days Gone	1	0.4				
4	Dead by Daylight	1	0.2	4	Dead by Daylight	1	0.4				
4	Doom Eternal	1	0.2	4	Doom Eternal	1	0.4				
4	Far Cry	1	0.2	4	Far Cry	1	0.4				
4	Ghost Recon	1	0.2	4	Resident Evil	1	0.4				
4	Resident Evil	1	0.2	4	Sombras de Mordor	1	0.4				
4	Sombras de Mordor	1	0.2	4	The división	1	0.4				
4	The Division	1	0.2								

Note. PEGI = Pan European Game Information (Minimum recommended age).

Table 6
Psychosocial Characteristics of the Sample: Gender Differences

	Total (N = 568)			Boys (n = 282)	Girls (n = 286)	F	p	μ_p^2
	M(DT)	Skew. (SE = 0.10)	Kurt. (SE = 0.21)	M(DT)	M(DT)			
Internalized Problems								
Anxiety	11.94(4.21)	0.13	-0.84	11.30(4.04)	12.57(4.28)	13.310	<.001***	.023
Social Anxiety	13.77(4.96)	0.29	-0.72	12.82(4.92)	14.70(4.82)	21.215	<.001***	.036
Depression	9.23(4.24)	1.25	1.07	8.54(3.49)	9.90(4.77)	15.017	<.001***	.026
Post-traumatic Symptomatology	6.64(2.62)	0.67	-0.10	6.34(2.39)	6.94(2.81)	7.547	.006**	.013
Somatic Complaints	10.31(3.91)	0.89	0.84	9.85(3.57)	10.76(4.18)	7.862	.005**	.014
Externalized Problems								
Attention Problems	12.78(4.35)	0.46	-0.23	12.75(4.16)	12.81(4.55)	0.025	.874	<.001
Hyperactivity-Impulsivity	10.85(4.09)	0.82	0.48	11.10(4.14)	10.60(4.03)	2.189	.140	.004
Anger Control Problems	8.46(3.81)	0.84	-0.02	8.55(3.93)	8.37(3.69)	0.308	.579	.001
Aggression	6.66(2.24)	1.99	4.44	6.94(2.38)	6.37(2.06)	9.232	.002**	.016
Defiant Behavior	5.19(2.01)	2.46	6.84	5.18(1.83)	5.19(2.17)	0.003	.959	<.001
Contextual Problems								
Family Relationship Problems	13.98(1.66)	-2.14	4.95	14.06(1.49)	13.90(1.81)	1.334	.249	.002
School Disengagement Problems	6.64(2.98)	0.86	0.12	6.89(3.10)	6.39(2.84)	3.956	.047*	.007
Problems with Schoolmates	6.73(2.83)	2.30	6.05	6.94(2.96)	6.51(2.69)	3.349	.068	.006
Vulnerabilities								
Emotional Regulation Problems	11.73(5.23)	0.59	-0.52	10.84(4.71)	12.60(5.57)	16.422	<.001***	.028
Personal Resources								
Self-esteem	15.66(3.85)	-1.01	0.32	16.51(3.05)	14.82(4.35)	28.980	<.001***	.049
Integration and Social Competence	18.86(3.99)	-0.57	-0.13	18.89(4.03)	18.83(3.96)	0.031	.860	<.001
Empathy	19.69(2.74)	-0.80	1.15	19.34(2.72)	20.03(2.72)	9.029	.003**	.016

Note. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

research (Bonnaire & Conan, 2024; DeCamp, 2017; Hartmann et al., 2015; Kasumovic et al., 2015; Lemmens et al., 2006).

The second objective of this study was to analyze the psychosocial characteristics that differentiate preadolescents who play PEGI 18 video games from those who do not. The results obtained are, in general terms and especially among boys, consistent with previous evidence (Chory & Goodboy, 2011; DeCamp, 2017; Hartmann et al., 2015; Lemmens et al., 2006). In the overall sample, those who play PEGI 18 video games score higher in aggression. That is, they report more frequent interpersonal aggression, such as teasing for fun, deliberately breaking or damaging things, insults, threats, or physical aggression. However, when differences in aggression are analyzed separately for boys and girls, although the trend in scores is the same, the differences are no longer statistically significant, possibly due to the smaller sample size in the gender subgroups compared to the total sample. Among boys, those who play PEGI 18 video games score lower in empathy, anxiety, and social anxiety, and higher in integration and social competence, defiant behavior, and

family relationship problems (which are reverse-scored, indicating a better family environment as reported by the student). These results suggest a player profile that perceives themselves as well integrated into their peer group, with no difficulties establishing or maintaining friendships, and without a mood of recurring worries or distress, but with difficulties identifying with others and sharing their feelings. Given their low empathy, they are expected to feel more enjoyment and less guilt when engaging in virtual violence (Hartmann et al., 2015). In the family context, they acknowledge behaving more disobediently and opposing parental authority and rules more than their peers, but at the same time, they consider that there is a good, supportive, and affectionate relationship with their family. These results are consistent with previous evidence that permissive, parent-as-friend styles correspond to higher odds of violent game play (DeCamp, 2017).

Among girls, the only statistically significant difference is in family relationship problems. Girls who play PEGI 18 video games score lower on this variable, indicating a greater perceived presence of family relationship problems. One possible explanation for this

Table 7

Psychosocial Characteristics of the Sample Analyzed: Differences According to Whether or Not They Play PEGI 18 Video Games

	Total (N=568)					Boys (n=282)					Girls (n=286)				
	No PEGI 18 (n=477)	PEGI 18 (n=91)	F	p	μ_p^2	No PEGI 18 (n=210)	PEGI 18 (n=72)	F	p	μ_p^2	No PEGI 18 (n=267)	PEGI 18 (n=19)	F	p	μ_p^2
	M(DT)	M(DT)				M(DT)	M(DT)				M(DT)	M(DT)			
Internalized Problems															
Anxiety	12.18 (4.20)	10.65 (4.06)	10.218	.001***	.018	11.69 (4.09)	10.15 (3.68)	7.995	.005**	.028	12.57 (4.24)	12.58 (4.93)	0.000	.992	<.001
Social Anxiety	14.07 (4.97)	12.19 (4.60)	11.161	.001***	.019	13.23 (5.09)	11.62 (4.19)	5.873	.016*	.021	14.73 (4.78)	14.36 (5.53)	0.100	.752	<.001
Depression	9.36 (4.33)	8.53 (3.63)	2.994	.084	.005	8.68 (3.63)	8.14 (3.02)	1.317	.252	.005	9.90 (4.75)	10.00 (5.21)	0.008	.928	<.001
Post-traumatic Symptoms	6.69 (2.62)	6.37 (2.63)	1.162	.281	.002	6.39 (2.33)	6.19 (2.57)	0.361	.548	.001	6.93 (2.81)	7.04 (2.81)	0.027	.871	<.001
Somatic Complaints	10.29 (3.85)	10.43 (4.23)	0.099	.753	<.001	9.80 (3.54)	10.00 (3.65)	0.174	.677	.001	10.67 (4.04)	12.05 (5.76)	1.927	.166	.007
Externalized Problems															
Attention Problems	12.72 (4.41)	13.10 (4.06)	0.572	.450	.001	12.65 (4.26)	13.04 (3.85)	0.458	.499	.002	12.77 (4.53)	13.32 (4.90)	0.258	.612	.001
Hyperactivity-Impulsivity	10.81 (4.16)	11.06 (3.68)	0.292	.589	.001	11.09 (4.36)	11.14 (3.43)	0.007	.932	<.001	10.58 (4.00)	10.76 (4.63)	0.034	.854	<.001
Anger Control Problems	8.38 (3.82)	8.87 (3.73)	1.273	.260	.002	8.50 (4.10)	8.70 (3.39)	0.142	.706	.001	8.29 (3.59)	9.53 (4.86)	1.997	.159	.007
Aggression	6.55 (2.21)	7.19 (2.33)	6.176	.013*	.011	6.85 (2.45)	7.19 (2.17)	1.088	.298	.004	6.32 (1.98)	7.17 (2.91)	3.040	.082	.011
Defiant Behavior	5.08 (1.89)	5.74 (2.49)	8.206	.004**	.014	5.02 (1.63)	5.67 (2.26)	6.886	.009**	.024	5.13 (2.07)	6.00 (3.28)	2.845	.093	.010
Contextual Problems															
Family Relationship Problems	13.95 (1.68)	14.16 (1.53)	1.202	.273	.002	13.92 (1.61)	14.50 (0.95)	8.459	.004**	.029	13.98 (1.74)	12.87 (2.45)	6.764	.010**	.023
School Disengagement Problems	6.55 (2.97)	7.12 (2.98)	2.893	.090	.005	6.82 (3.20)	7.09 (2.81)	0.400	.528	.001	6.33 (2.77)	7.26 (3.63)	1.924	.167	.007
Problems with Schoolmates	6.72 (2.83)	6.72 (2.88)	0.000	.999	<.001	7.01 (3.02)	6.74 (2.78)	0.475	.491	.002	6.50 (2.65)	6.68 (3.30)	0.086	.769	<.001
Vulnerabilities															
Emotional Regulation Problems	11.86 (5.31)	11.02 (4.76)	1.965	.162	.003	10.90 (4.80)	10.67 (4.49)	0.133	.715	<.001	12.62 (5.58)	12.37 (5.60)	0.034	.853	<.001
Personal Resources															
Self-esteem	15.56 (3.92)	16.15 (3.43)	1.756	.186	.003	16.43 (3.09)	16.76 (2.92)	0.616	.433	.002	14.88 (4.35)	13.84 (4.25)	1.021	.313	.004
Integration and Social Competence	18.72 (4.01)	19.61 (3.86)	3.830	.051	.007	18.53 (4.07)	19.94 (3.76)	6.704	.010**	.023	18.87 (3.96)	18.35 (4.05)	0.297	.586	.001
Empathy	19.85 (2.60)	18.86 (3.24)	10.201	.001***	.018	19.59 (2.51)	18.61 (3.16)	7.200	.008**	.025	20.05 (2.66)	19.79 (3.48)	0.161	.688	.001

Note. No PEGI 18 = Non-players of PEGI 18 video games; PEGI 18 = Players of PEGI 18 video games.

*p ≤.05; **p ≤.01; ***p ≤.001.

result may be related to the greater likelihood, found in previous studies, of playing violent video games in stressful family contexts, such as those where the father has lost his job, a family member has recently been in jail/prison, or the family has moved frequently, or in family contexts where parents show little interest in their children's activities (DeCamp, 2017). It may also be related to playing these types of video games together with a father or older siblings (Asociación Española de Videojuegos, 2024).

In the family context, it is usually the father or an older brother who plays video games with the child; and it is usually the father or the child themselves who chooses the video games, rather than the mother or another family member (Asociación Española de Videojuegos, 2024). A possible explanation, to be explored in future studies, for why girls are more likely to play PEGI 18 video games when they live in families with relationship problems, is that they share video games with their fathers or brothers, who in some cases may tend to be more aggressive and less empathetic. In contrast, among boys, the profile found is compatible with permissive families. In this sense, buying video games may be a way to try to keep the child satisfied (who, on the other hand, tends to behave defiantly toward their parents). Parents who play video games tend to believe that playing video games with their children helps strengthen their relationship; and adults who play video games with their children consider that the most desired gift for minors is video games, ahead of clothing, board games, sports, or other items (Asociación Española de Videojuegos, 2024).

This study has relevant theoretical and practical implications. From a theoretical perspective, it contributes to understanding the psychosocial characteristics of preadolescents who play video games with adult content, as well as differences between boys and girls. From a practical perspective, the results obtained in this study regarding the prevalence of use of video games not appropriate for the age of the sample (10–13 years), together with previous evidence about the negative effects of video games with adult content (Anderson et al., 2010; Burkhardt & Lenhard, 2022; Calvert et al., 2017; Mathur & VanderWeele, 2019; Prescott et al., 2018), underscore the importance of implementing educational initiatives at community, school, and family levels.

At the community level, these findings emphasize the importance of maintaining an age classification system such as Europe's PEGI, which serves as a crucial measure to protect children from early exposure to harmful content. Above all, they underscore the need to raise public awareness and promote the active use of this system. Furthermore, implementing information campaigns to highlight the potential risks of violent video games remains necessary. Finally, fostering models of socialization grounded in equality, and challenging the normalization of traditional gender roles and violence, continues to be an essential objective.

At the school level, the results and previous evidence highlight the importance of promoting critical and responsible use of entertainment media. This use must be appropriate for students' ages and consider age ratings. Schools should also promote values that reject violence and encourage empathy in human relationships.

At the family level, it is important that parents are aware of their responsibility in supervising, accompanying, guiding, and setting limits on children's use of video games. They can mitigate adverse effects of media by using parental mediation (Álvarez-García, Núñez et al., 2019; Collier et al., 2016). It is important for parents

to establish rules and limits regarding playtime and the type of content, and to supervise their enforcement (restrictive mediation). In this regard, it is important for parents to consider informative ratings. In Spain, more than half of adults with children report that they do not always take informative labels into account before purchasing a game, and a significant percentage (20.2%) admit to never or almost never considering them (Asociación Española de Videojuegos, 2024).

It is also important for families to foster a critical perspective in their children regarding video game use, identifying possible risks and the mechanisms by which they occur. Parents can play together with their children to discuss the content of games and naturally supervise how the child plays. In recent years, the percentage of parents in Spain who play video games with their children has increased significantly (Asociación Española de Videojuegos, 2024). If adults also play video games, they should be aware of their role as models for their children, and the importance of conveying appropriate values. Parental mediation should be adjusted to the child's age, progressively promoting their autonomy.

In this study, different psychosocial and usage profiles were observed between boys and girls in the use of video games with adult content (PEGI 18). One plausible explanation for this may lie in socialization patterns associated with gender roles. Authors such as Bussey and Bandura (1999) have emphasized the role of social influence processes in the development of gender identity through mechanisms including direct tuition, modeling, and evaluative social reactions to gender-typed behaviors. In the family context, from early childhood, parents tend to choose games for boys that are related to rough or physically active pursuits (e.g., cars, machines, superhero action figures, or sports), and for girls, games associated with caregiving or domestic activities (e.g., dolls, stuffed animals, or kitchen sets) (Jayo et al., 2023). Later, when using video games, parents often exercise greater protectiveness over the type of content allowed for girls than for boys, to whom they allow more autonomy (Álvarez-García, García et al., 2019; Isorna et al., 2025). In the peer context, playing video games with adult content may be more socially rewarded by peers among boys compared to girls, for whom other types of video games are generally more valued and considered more consistent with traditional femininity. However, the use of violent video games can also be rewarded in girls in certain contexts. For example, previous research has found that some adult women perceive playing violent video games as enhancing their attractiveness to current or potential romantic partners (Kasumovic et al., 2015).

In short, no single risk factor consistently leads a person to act aggressively or violently. Rather, it is the accumulation of risk factors that tends to lead to aggressive or violent behavior (Sturmey, 2022). Among these is the possible effect of video games with violent content. This study contributes to the understanding of the characteristics of PEGI 18 video game players, with relevant implications for prevention.

However, this study also has some limitations. First, the study was conducted with a sample drawn from a specific population, limited to certain ages and a specific geographic area. In the future, it would be of interest to test these models in other ages and regions. Second, the data were collected through self-reports administered to minors. This study should be complemented with data obtained using other methodologies, such as focus groups, and other

informants, such as families. Third, four of the seventeen scales used exhibit internal consistency coefficients below the commonly accepted threshold of .70. This may negatively impact the precision with which these four constructs are measured. Consequently, the results and conclusions derived from them should be considered exploratory. It is recommended to conduct additional studies using instruments capable of achieving higher internal consistency in the measurement of these variables. Finally, this study analyzed video game use, but the frequency and duration of gameplay were not considered. These are relevant variables that should be accounted for in future research.

Conflict of Interest

The authors declare no conflicts of interest regarding this manuscript.

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