Revista Mediterránea de Comunicación
Mediterranean Journal of Communication



Revista Mediterránea de Comunicación (RMC)
*Mediterranean Journal of Communication (MJC)*
ISSN: 1989-872X

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# Body Satisfaction and Screen Media Usage in Spanish Schoolchildren

## *Satisfacción Corporal y Uso de Pantallas en Escolares Españoles*

**Deadlines** | Received: 26/08/2022- Reviewed: 13/10/2022 - Accepted: 20/10/2022 - Published: 01/01/2023

**Abstract**
Screen media usage among young children has increased dramatically in recent years. Although media consumption has been noted as an influencing factor in children's body image, the relationship between children's body satisfaction and screen media usage in children under 10 years old remains a less-explored topic. A cross-sectional study was designed to analyze the association between screen media usage and the body image satisfaction of Spanish children 5–9 years old. By examining the data of 792 schoolchildren (N = 363 boys, 429 girls; M = 7.23 years), this study sought to reveal the association between screen media usage and children's body satisfaction. The results showed significant correlations between the use of television and video games and satisfaction expressed with facial features and overall body scheme. Observations by sex indicated positive correlations between television consumption and satisfaction with weight among boys, while in girls, a negative association was observed between video game consumption and satisfaction with skin and overall body scheme. Multiple regression analyses revealed a positive association between television consumption and satisfaction with weight, face, and hair, whereas the use of video games was negatively associated with satisfaction with eye and skin color. This study provides a better understanding of the relationship between screen consumption and body satisfaction in minors; accordingly, it seeks to contribute to the design of more strategic and focused media literacy interventions, particularly among those populations that are less well-explored, such as young children.

**Keywords**
Body image; body image perception; body satisfaction; child audience; digital media; media psychology

***Resumen***
*El uso de pantallas entre los menores ha aumentado drásticamente en los últimos años. Aunque el consumo mediático es considerado un factor influyente en la satisfacción corporal infantil, la relación entre el consumo de pantallas y la satisfacción corporal en menores de diez años es un tema aún poco explorado. Se diseñó un estudio transversal con una muestra de 792 estudiantes (N = 363 niños, 429 niñas, M = 7.23 años) para analizar la asociación entre el uso de pantallas y la satisfacción corporal en niños y niñas de 5 a 9 años. Los resultados muestran relaciones entre el consumo de televisión y videojuegos y la satisfacción de rasgos faciales y esquema corporal global. Las observaciones por sexo indicaron correlaciones positivas para el consumo de televisión y la satisfacción con el peso entre los varones mientras que en las niñas se observó una asociación negativa para el consumo de videojuegos y la satisfacción de la piel y el esquema corporal global. Los análisis de regresión múltiple revelaron una asociación positiva para el consumo de televisión con la satisfacción con el peso, la cara y el cabello; por su parte, el uso de videojuegos se asoció negativamente con la satisfacción con el color de los ojos y la piel. Este estudio aporta un mayor conocimiento sobre la relación entre consumo de pantallas y satisfacción corporal infantil y puede contribuir al diseño de intervenciones de alfabetización mediática más estratégicas y focalizadas, sobre todo entre aquellas poblaciones menos exploradas como la audiencia infantil.*

***Palabras clave***
*Audiencia infantil; imagen corporal; medios digitales; percepción corporal; psicología de los medios; satisfacción corporal*



Sánchez-Reina, J.-R., Jiménez-Morales, M., & Montaña-Blasco, M. (2023). Body Satisfaction and Screen Media Usage in Spanish Schoolchildren. *Revista Mediterránea de Comunicación/Mediterranean Journal of Communication, 14*(1), 295-305. https://www.doi.org/10.14198/MEDCOM.23406

## 1. Introduction

Screen media usage has increasingly become an ordinary pastime for school-aged children (Brito et al., 2018; Chaudron, 2015; Reid Chassiakos et al., 2016). Spanish children (6–12 years old) spend an average of five hours a day watching screens, including both the consumption of traditional and digital devices (AIMC, 2019). The growing familiarity of children with digital screens has reignited concerns about the prolonged use of media and exposure to its harmful content, sparking discussions about the role of media consumption and its effects on child body dissatisfaction (Cernikova, Smahel & Wright, 2017; Kelly et al., 2018; Wartella et al., 2018).

Scientific literature has pointed out that the media is one of the major sources of body image pressure and body awareness. Both intended consumption and indirect media exposure have been considered risk factors that affect levels of body satisfaction in children and adolescents (Spurr, Berry & Walker, 2013; Tatangelo & Ricciardelli, 2017). Among different media devices, television consumption has traditionally led the way as a major influence on child body satisfaction (Sánchez-Reina, 2020), whereas the role of new media devices, such as tablets, smartphones, and game consoles, continues to be explored along with the changing digital environment and its natural complexities (Richards, Caldwell & Go, 2015).

The growing diversification of media consumption in the Spanish child population involves the increasing usage of smartphones, tablets, and gaming consoles (AIMC, 2019). In comparison to former generations, children today naturally exist in a digital environment with a large preference for the consumption of social media platforms, streaming video channels, and online gaming sites (Castelló-Martínez & Tur-Viñes, 2020; Qustodio, 2022). Although recent studies have shown a growing tendency for body dissatisfaction in Spanish minors (Añez et al., 2018; Sánchez-Castillo et al., 2018; López-Sánchez, Suárez & Smith, 2017), researching the factors associated with a child's body discontentment has remained a less explored topic, particularly for young age groups. Therefore, the present study analyzed the association between screen media usage and body satisfaction in school-aged children (5–9 years old). By examining children's media preferences and body-part satisfaction, the study hypothesized that screen media usage would be associated with negative levels of body image satisfaction.

### 1.1. Screen media use and child body image satisfaction

Body dissatisfaction is a growing concern for almost all populations (Grogan, 2016). While body preoccupation has traditionally been associated with women and female adolescents, recent studies claim that children as young as five may experience body image concerns (Costa et al., 2016; Duchin et al., 2015; Latiff, Muhamad & Rahman, 2018). Body image dissatisfaction in young children is prevalent in both boys and girls, and, according to recent reports, it may have a higher impact on overweight and obese children (Costa et al., 2016).

Different factors interfere with children's body satisfaction. Psychological well-being, family pressure, and the media have been targeted as core causes (Cash & Smolak, 2011). There is common agreement that family and peers are the most influential factors in the body image construction of minors (Latiff, Muhamad & Rahman, 2018). Children growing up in healthy environments are likely to develop positive attitudes toward their bodies and appearance and experience higher levels of body acceptance during adolescence and early adulthood (Damiano et al., 2014; Grogan, 2016; Rodgers et al., 2020).

However, the emergence of a more media-mediated culture and its consequences in child socialization has modified the cultural spectrum that shapes children's body image and body identity. As children and adolescents engage with the media, the media narratives and representations become a window to the word of embodiment, (re)configuring children's perceptions, attitudes, and emotions toward their bodies and their body appearances (Añez et al., 2018; Dumas & Desroches, 2019; Yang et al., 2020). Although family and peers persist as the main mediators in the construction of a child's body image, the media emerge as the landscape in which children coexist with a body cult scenario; and even symbolically, they deal with stereotypes and hegemonic body narratives (Sánchez-Reina, 2020).

Child media consumption currently involves both traditional and digital media. While television figures as traditional media, mobile devices, tablets, and gaming consoles represent digital media. In comparison to teenagers, children present a more hybrid media consumption; they combine the consumption of television with the regular use of other media devices, such as tablets and smartphones (Kantar Media, 2021; Núñez-Gómez, Ortega-Mohedano & Larrañaga-Martínez, 2021). Both age groups also show different consumption patterns. Children are more engaged with television content (cartoons, series, TV shows, etc.), while adolescents combine their content preferences in a multimodal environment led by social media (Qustodio, 2022).

Regardless of the type of media used, substantial academic research has demonstrated that, even at different levels and conditions, screen media consumption may be associated with lower levels of body satisfaction in both children and adolescents. Some conventional studies, such as the ones conducted

by Anschutz, Engels & Van Strien (2012), Haddad et al. (2019), and Uchôa et al. (2019) have emphasized the mediating role of television in youngsters' body satisfaction. According to these studies, a strong relationship between television viewing and body dissatisfaction may coexist in younger adolescents; furthermore, this problem may be aggravated among the considered at-risk groups (e.g., teenage girls, eating disorder population, and younger children) and moderated by variables such as new formats and forms of television viewing (Jordan-Jackson et al., 2019).

A parallel research line has explored the relationship between video game playing and adolescent body self-esteem. Barlett and Harris (2008) conducted an early study on the subject and reported that college students exposed to video games displaying ideal body shapes (muscular and thin ideals) presented significantly lower body esteem after the experiment. Consistent with this finding, Sylvia, King & Morse (2014) confirmed that video game playing may decrease body esteem in male players and did not appear to affect participants' perceptions of muscularity. Recent studies, such as the one conducted by Sánchez-Zafra et al. (2019), categorically explain the association between video game use and body image satisfaction by revealing that children with a lower emotional self-concept in higher levels of comparison may experience lower levels of self-body esteem and poor body image.

Emerging research has reformulated the approach to screen media use and body image satisfaction. A growing corpus of research has shown interest in exploring the relationship between the use of digital media and teens' levels of body satisfaction (Cernikova, Smahel & Wright, 2017; Kelly et al., 2018). The studies conducted by Eyal and Te'eni-Harari (2013) and Jarman et al. (2021) are exemplary in illustrating the mechanisms that sustain the relationship between digital media consumption and minors' body satisfaction, in which major media exposure led by media gadgets and social media platforms moderates the levels of body image satisfaction. Conversely, Añez et al. (2016) showed that the size of the effect may be moderated by the media activity performed by users; for example, adolescents using computers for schoolwork showed higher levels of body dissatisfaction compared to those using the computers for leisure activities, whose body image did not alter.

As observed in the aforementioned studies, the influence of screen media use is associated with a greater probability of body dissatisfaction. The use of media devices, such as televisions, smartphones, and computers, may contribute to children and adolescents experiencing any type of body discontentment. The influence of both traditional and digital devices has been indicated as a predictor of poor body image and dissatisfaction in boys and girls. Considering that preliminary studies have focused on the analysis of children and adolescents as a heterogeneous age group, the growing role of younger children (6–9 years old) as predefined consumers, and the influence of media in their body awareness, the present study hypothesized that screen media usage would be associated with negative levels of body image satisfaction. Based on the findings from prior studies, this work suggested that Spanish children would experience negative levels of body image associated with both traditional and digital media. Such a formulation meets the requirements that television, video game exposure, and digital devices (tablets and smartphones) have a negative effect on children's body image, and it considers the observations according to gender and the children's perceptions of their fragmented body schemata.

In line with similar studies evaluating children's body satisfaction (Cash & Smolak, 2011; Grogan, 2016), the present study attempts to evaluate children's body satisfaction in connection with the psychological concept of the body awareness or cognitive experience children possess to relate and connect with their bodies (Smolak, 2004). Contrary to the other studies examining the media and the body image of children, the current study proposes the measurement of body awareness by exploring media consumption in relation to children's body schemata, that is, the assessment of different body parts (Penelo et al., 2012).

## 2. Methods

This study utilizes data from primary school children in the first, second, and third grades. With the approval of the Pompeu Fabra University Research Ethics Committee, a convenience sample of 792 children was recruited from 15 schools in the Spanish cities of Barcelona, Madrid, and Seville. Following the methodological procedures of similar studies (Chaudron, 2015), a convenience sample was applied, prioritizing the ecological validity of the study. The sample size was set under the conditions of exploring three of the most populated Spanish cities, and the selection of schools was determined by the accessibility and interest of the educational centers to enroll in the study. Demographically, the sample was formed by 196 students from Barcelona, 320 from Madrid, and 276 from Seville, and the educational centers were classified as five public schools, nine charter, and one private.

A digitally supported questionnaire was administered to the children. The questionnaire was expressly designed for the research purpose based on validated instruments from preceding studies with children (Daraganova, 2014; Fisher-Keller, 2007; Penelo et al., 2012). The data collected included demographic

information, media preferences, body image perception, body satisfaction, and attitudes toward others' body images. To cope with children's literacy competencies, the questionnaire was written in an easy-to-read format and included short sentences and responses, and when possible, it was accompanied by images and icons to substitute words dynamizing the verbal interaction. For example, rating stars and/or smiley faces substituted for a Likert scale (Hall, Hume & Tazzyman, 2016). A first version of the questionnaire was tested within a pilot group of 60 students.

The questionnaire was administered individually. Every child was accompanied by a female researcher, who first explained the research aim and the steps of the research activity. The researcher read the demographic questions aloud to each participant. Second, she asked the interviewed child to read for her the following questions and choose their favorite response on the touch screen. Given the age of the participants (5–9 years old), this gamifying procedure guaranteed children's comprehension of the questionnaire and ensured the confidentiality of their data. After questionnaire completion, a second researcher measured the children's heights and weights. Weight was measured with an electronic scale (ADE model M317600, precision of 0.1 kg), and height was measured with a stadiometer height rod. After obtaining these data, the body mass index (BMI) was calculated.

Only those children whose parents or legal guardians approved their participation took part in the study. To verify acceptance, all families were sent a paper consent form two months prior to the research activity. To guarantee both family and child anonymity, school teachers validated the consent forms, and the data were electronically entered with an alphanumeric code for analysis.

### 2.1. Measurement

This study included the measurement of three groups of variables: Individual Characteristics (sex, age, and BMI), Screen Media Usage (television, tablet, gaming console, and smartphone), and Body Image Satisfaction (body, height, weight, face, eyes, hair, legs, and skin color).

Individual Characteristics: The participants' socio-demographic information was collected, and 54.2% (n = 429) of the sample were girls, and 45.8% (n = 363) were boys. The mean age of the participants was 7.23, SD = 1.03. BMI z-score was computed as follows: height(weight/100)$^2$; and the mean value was 17.05, SD = 2.80.

Screen Media Usage: This included the assessment of screen use by asking the children the question: "What media do you usually use?" Four possible choices were offered. Watching television was the most popular activity among the interviewed children (69.8%), followed by the use of tablets (50.9%), video games (33.8%), and smartphones (30.3%).

Body Image Satisfaction: The questions explored the children's affective dimension with their bodies. Based on the assessment of psychometric properties of body image by Penelo et al. (2012), children's body satisfaction with their body schemata was measured (the assessment of different body parts). Satisfaction was reported on a 5-point scale ranging from 0 = "Not at all" to 4 = "Very much." Each child was asked the following question: "How much do you like your [mentioning up to eight different body parts]?" The full scale was computed by averaging the items; M = 3.51, SD = 0.47, □ = 0.72. The measurement by body part indicated that face (M = 3.63, SD = 0.72) and eyes satisfaction (M = 3.63, SD = 0.73) had the highest mean values, followed by hair (M = 3.59, SD = 0.79), skin (M = 3.69, SD = 0.78), body (M = 3.56, SD = 0.80), and height (M = 3.56, SD = 0.75); in contrast, satisfaction with legs (M = 3.39, SD = 0.91) and weight (M = 3.17, SD = 0.75) had the lowest values.

Statistical analysis was performed using the SPSS software package version 25.0. Bivariate analyses using Pearson's and Spearman's tests were performed to analyze the relationships between individual characteristics, screen media usage, and body satisfaction. To observe associations in sex, bivariate analyses for the subsamples of boys and girls were independently tested. Next, nine hierarchical linear regressions were calculated to examine the effects of individual characteristics and screen media usage on body satisfaction for each body part.

## 3. Results

### 3.1 Individual characteristics and body satisfaction

Bivariate analyses for individual characteristics reported significant correlations in body, weight, eyes, and hair satisfaction (Table 1). BMI z-score was the most relevant variable, as it reported significant associations for body ($p < 0.05$), weight ($p < 0.01$), and eyes satisfaction ($p < 0.05$). In turn, age reported a significant association only with weight ($p < 0.05$). Observations within the gendered subsamples reported more significant correlations for BMI z-score in girls, while boys showed significant values for height satisfaction ($p < 0.05$). The magnitudes of association were not strong, as they remained close to zero. While reporting similar correlations on the overall sample, bivariate analysis for the averaged scale did not report significant differences in the girls' and boys' subsamples.

**Table 1: Association of body satisfaction and individual characteristics of children**

| | Body | Height | Weight | Face | Eyes | Hair | Legs | Skin | Avg. Scale |
|---|---|---|---|---|---|---|---|---|---|
| **All (n = 792)** | | | | | | | | | |
| Sex | -0.006 | -0.064 | -0.03 | -0.055 | -.091* | -.112** | 0.051 | -0.055 | **-0.077*** |
| Age† | -0.016 | -0.052 | -.074* | 0.027 | 0.06 | 0.064 | -0.03 | 0.011 | **-0.008** |
| BMI z-score | -.083* | 0.009 | -.241** | 0.006 | .072* | -0.014 | -0.01 | -0.018 | **-0.075*** |
| **Girls (n= 429)** | | | | | | | | | |
| Age | -0.017 | 0.004 | -0.046 | 0.068 | .109* | 0.081 | -0.052 | -0.051 | **0.011** |
| BMI z-score | -.123* | 0.033 | -.257** | 0.026 | .136** | 0.002 | -0.055 | -0.05 | **-0.080** |
| **Boys (n = 363)** | | | | | | | | | |
| Age | -0.011 | -.112* | -0.098 | -0.011 | 0.016 | 0.057 | -0.007 | 0.084 | **-0.022** |
| BMI z-score | -0.046 | -0.011 | -.225** | -0.008 | 0.018 | -0.023 | 0.033 | 0.014 | **-0.068** |

†Age in months *p value < .05; ** p value < .01

Source: Own elaboration

### 3.2 Screen media usage and body satisfaction

Bivariate analyses in the overall sample revealed important correlations between screen media usage and body image satisfaction. In comparison to digital devices, such as smartphones and tablets, television and video games reported the most significant associations. As shown in Table 2, television was positively correlated with the body ($p < 0.05$), face ($p < 0.01$), hair ($p < 0.01$), and legs ($p < 0.05$) satisfaction. On the contrary, the usage of video games was negatively associated with body ($p < 0.01$), eyes ($p < 0.05$), and skin color ($p < 0.01$) satisfaction. In contrast to television and video games, the use of smartphones reported significant correlations for only height satisfaction ($p < 0.01$), while tablet usage did not report any significant correlation.

Observations by sex showed similar values, as television and video games correlated with body image satisfaction. In comparison to the subsample of boys, girls reported values that pointed to a negative correlation with video game usage. These associations were highlighted for body ($p < 0.01$), eyes ($p < 0.01$), and skin color ($p < 0.01$) satisfaction. Conversely, the group of boys reported significant correlations for television consumption, and the values were positively associated with body ($p < 0.05$), weight ($p < 0.05$), face ($p < 0.05$), and hair ($p < 0.05$) satisfaction. The only significant correlations between television and video game usage were reported in the averaged scale of gendered subsamples. The magnitude of association was small in all cases.

**Table 2: Association of body satisfaction and screen media usage of children**

| | Body | Height | Weight | Face | Eyes | Hair | Legs | Skin | Avg. Scale |
|---|---|---|---|---|---|---|---|---|---|
| ***All (n = 792)*** | | | | | | | | | |
| Television | 0.086* | 0.032 | 0.067 | 0.132** | 0.07 | 0.113** | 0.073* | 0.063 | **0.122**** |
| Tablet | 0.033 | 0.049 | -0.019 | -0.001 | 0.043 | 0.036 | 0.051 | 0.029 | **0.029** |
| Video games | -0.121** | -0.035 | -0.013 | -0.031 | -0.099** | -0.052 | -0.013 | -0.099** | **-0.088*** |
| Smartphone | 0.006 | 0.092** | 0.031 | -0.051 | 0.059 | 0.001 | 0.03 | -0.04 | **0.024** |
| ***Girls (n = 429)*** | | | | | | | | | |
| Television | 0.051 | 0.048 | 0.024 | .144** | 0.068 | .107* | 0.049 | 0.074 | **0.095*** |
| Tablet | 0.059 | .148** | 0.034 | 0.038 | 0.094 | 0.067 | 0.088 | 0.036 | **-0.093** |
| Video games | -.147** | -0.055 | -0.01 | -0.061 | -.127** | -0.034 | -0.063 | -.150** | **-0.110*** |
| Smartphone | -0.006 | 0.083 | 0.073 | -0.06 | 0.066 | -0.024 | 0.042 | -0.007 | **0.037** |

| | Body | Height | Weight | Face | Eyes | Hair | Legs | Skin | Avg. Scale |
|---|---|---|---|---|---|---|---|---|---|
| ***Boys (n = 363)*** | | | | | | | | | |
| Television | .129* | 0.02 | .119* | .123* | 0.08 | .131* | 0.099 | 0.055 | **0.159**** |
| Tablet | 0.003 | -0.05 | -0.072 | -0.034 | 0.007 | 0.026 | -0.003 | 0.032 | **-0.032** |
| Video games | -.115* | 0.023 | 0.006 | 0.03 | -0.026 | 0.009 | -0.011 | -0.031 | **-0.025** |
| Smartphone | 0.021 | .118* | -0.005 | -0.03 | 0.076 | 0.052 | 0.006 | -0.062 | **0.029** |

*p value < .05; ** p value < .01

Source: Own elaboration

### 3.3. Regression models: predicting body satisfaction

Table 3 summarizes the results of the computed hierarchical regression analyses. This excludes the model for legs, which was not significant ($p > 0.05$). In the significant models, from the individual characteristics, sex was negatively associated with eyes ($p < 0.05$) and hair satisfaction ($p < 0.01$); age was positively associated with hair satisfaction ($p < 0.05$), whereas BMI z-score was negatively associated with body ($p < 0.05$) and weight ($p < 0.01$) satisfaction. The magnitudes of association were not strong, as their values were close to zero. Concerning screen media usage, television was positively correlated with weight ($p < 0.05$), face ($p < 0.01$), and hair satisfaction ($p < 0.05$). The largest effect was found for face satisfaction (beta = 0.151). In contrast, the use of video games reported significant negative associations for eyes ($p < 0.05$) and skin color ($p < 0.05$) satisfaction. The size of the effect was small, however.

**Table 3: Multiple regression analyses predicting body satisfaction: individual characteristics and screen media usage**

| | Body | Height | Weight | Face | Eyes | Hair | Skin | Avg. Scale |
|---|---|---|---|---|---|---|---|---|
| ***Block 1: Individual characteristics*** | | | | | | | | |
| Sex | -0.022 | 0.052 | -0.047 | -0.058 | -0.080* | -0.100** | -0.062 | **-0.076*** |
| Age | 0.003 | -0.054 | -0.022 | 0.030 | 0.051 | 0.074* | 0.019 | **0.011** |
| *BMI z-score* | -0.083* | 0.022 | -0.235** | 0.001 | 0.063 | -0.027 | -0.020 | **-0.076*** |
| *Block 1 R2* | 0.007 | 0.006 | 0.061 | 0.004 | 0.014 | 0.015 | 0.004 | **0.011** |
| ***Block 2: Screen Media Usage*** | | | | | | | | |
| Television | 0.066 | 0.042 | 0.077* | 0.151** | 0.052 | 0.120** | 0.070 | **0.135**** |
| Tablet | 0.044 | 0.045 | -0.034 | -0.019 | 0.054 | 0.001 | 0.004 | **0.024** |
| Video games | -0.077 | -0.008 | 0.027 | -0.010 | -0.078* | -0.019 | -0.086* | **-0.055** |
| Smartphone | 0.011 | 0.096** | 0.008 | -0.057 | 0.066 | 0.033 | -0.049 | **0.024** |
| *R2 Change* | 0.012 | 0.015 | 0.007 | 0.024 | 0.015 | 0.016 | 0.013 | **0.023** |
| *Total R2* | 0.019* | 0.020* | 0.068** | 0.028** | 0.029** | 0.031** | 0.018* | **0.034** |

Standardized coefficients (betas) are presented; *p value < .05; ** p value < .01

Source: Own elaboration

## 4. Discussion

This study aimed to analyze the association between screen media usage and the body satisfaction of school-aged children 5–9 years old. Contrary to the existing research, this work contributes to the examination of the association between screen media consumption and the satisfaction of young children with their body schemata (body parts), and it provides an insightful comprehension of how digital and traditional screen media influence children's body perception and satisfaction.

The findings in this study revealed that individual characteristics, such as sex and BMI status, are primary factors associated with levels of body satisfaction. Herein, while sex (being a girl) conditioned the satisfaction with physical traits, such as eyes and hair, BMI status might be a key predictor of body satisfaction in the overall sample. Furthermore, the consumption of media devices, such as television, tablets, smartphones, and gaming consoles, would mediate the levels of child body satisfaction. According to the results, the use of video games might be a predictive factor of negative body satisfaction in participant children. In line with similar studies (Barlett & Harris, 2008; Sánchez-Zafra et al., 2019; Sylvia, King & Morse, 2014), this association was more relevant among girls, who reported major negative associations for their body, eyes, and skin color satisfaction. Multiple regression analyses confirmed the size of the effect of video game usage on the overall sample. Although the size of the effect was weak, the direction of the effect remained similar to that in the cited literature.

In line with the traditional debate focusing on the negative effects of television on children's body image (Anschutz, Engels & Van Strien, 2012; Haddad et al., 2019; Jordan-Jackson et al., 2019), the findings in the current study showed contradictory results, revealing a positive association between television consumption and the positive perception of the body schemata of young children. It is noteworthy to mention that the relevant associations were present mostly among boys, whose satisfaction with their weight, face, and hair corresponded with the consumption of this media. Although the size of the effect was close to zero, the direction of the effect proposes an inverted relationship between television viewing and the body image satisfaction of young children. Concerning the use of digital devices, such as smartphones and tablets, results from this study did not show relevant findings, as the associations between digital screens and young children's body satisfaction were mostly absent.

Concerning hypothesis testing, this study shows that not all screen media usage might be associated with negative levels of body image among young children. While video game usage is associated with negative levels of body image, television viewing addresses positive levels of body satisfaction. These findings confirm the contributions made by prior studies arguing that video game exposure and its content socialization (idealization of character/avatar portrayals) may lead children to experience any type of body satisfaction. Further research must clarify the factors and conditions under which young children experience negative body image satisfaction. Observations by sex indicated that the negative association is mostly present among girls, which confirms another particularity of our hypothesis. By addressing a negative association between girls' video game usage and their satisfaction with their eyes and skin color, this study shows a potential direction for future research.

In line with existing research (e.g., Amado-Alonso et al., 2020; Heidelberger & Smith, 2018; Lemes et al., 2018), this study offers a wider perspective on the body image satisfaction of young children. As a novelty, this study introduced the measurement of child content with body image by correlating the use of screen media devices and satisfaction with different body parts. Such an assessment is critical since Spanish children have coped with the new media environment with increasing levels of digital media consumption, in which tablets, smartphones, and video game consoles are their favorite leisure activities.

The study also presented some important limitations. As an explanatory model, the study provided insightful information to understand the relationship between screen media and child body satisfaction; however, the understanding of this phenomenon should not be limited to a cause-effect relationship. The analysis of psychological and sociocultural factors is needed to evaluate the complexity of a changing phenomenon (Grogan, 2016). Future research should observe the inclusion of intrinsic and extrinsic psychological factors, as well as other explanatory variables such as the time of exposure, media literacy skills, and/or media accompaniment.

Some methodological issues must also be carefully considered. Concerning the sample, this randomized study did not represent the overall Spanish child population. Data were collected in similar environments of schools located in urban districts, and the children had similar family backgrounds. The inclusion of a less diverse population was not intentional but a consequence of institutional interest in joining the study. Further research should consider more diverse school environments as well as the inclusion of smaller cities and rural areas. Finally, as with any research involving young children, quantitative research methods present difficulties and controversy. Although any type of bias was carefully managed in the present study, the data obtained should be revised and triangulated with other research methods. As part of a macro study, the obtained data have been refined with qualitative analysis in related publications (Sánchez-Reina, 2020; Sánchez-Reina, Medina-Bravo y Jiménez-Morales, 2022), which not only validated the introduced hypothesis but also expanded the comprehension of screen mediation on children's body image awareness.

## *5. Conclusions*

With an increasing number of minors engaged with electronic media, the scientific literature has underscored the potential effects of screen consumption on child body satisfaction. Although existing

research has examined the correlated effects, there are still some limitations regarding the identification of media devices and the size of their effects on body satisfaction. To fill this gap, this study showed that video game usage may be associated with negative levels of body satisfaction, mostly among girls.

As the regulation of new media is still a project in development, early interventions in childhood are recommended. Health policies and media education programs seem to be critical to promoting and protecting child body satisfaction and awareness. In an era of excessive information and media use, it is inevitable that the prohibition of media is the most efficient measure. Unfortunately, prohibitions do not limit the power of the media and its effects on children. It would be naive to think that the blocking and restriction of media would put an end to the main problems, specifically those related to children's body image.

Boys and girls build their body image accompanied by their family and friends, but unlike a few years ago, today, they validate their body image and identity based on their favorite Marvel characters, YouTubers, and advertising portrayals. Similar to adolescents and adults, children inhabit that symbolic space where they daydream and idolize a body; they embody the bodily experience by recreating narratives and images disseminated by all media. Understanding how media raise children and co-construct their body image may allow families, educators, and policymakers to be not only more cautious but also more creative in devising solutions to counter the effects of the media and the body narratives. Media education and the training of children's coping skills is an effective mechanism to fight the misleading role of the media. The integration of the presented analysis may contribute to the development of strategic actions within potential risk groups and the reinforcement of health literacies among those children with larger screen media consumption.

**6. Specific contributions of each author (to be completed by the authors, after final acceptance of the article, in the final version)**

| Contributions | Authors |
|---|---|
| **Research design** | Author 1, Author 2, Author 3 |
| **Documentary search** | Author 1, Author 2 |
| **Data collection** | Author 1, Author 2 |
| **Critical data analysis and interpretation** | Author 1, Author 3 |
| **Review and approval of versions** | Author 1, Author 2, Author 3 |

**7. Acknowledgement**

This paper has been proofread by MFA M. Dell. We thank her feedback and careful editing work.

**8. Funding**

Ministry of Economy and Competitiveness, Spain (CSO2014-58220-R) and Grant FPI MINECO (BES-2015-071228).

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