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Predicting wellbeing in children's use of smart screen devices

Predicción del bienestar sobre el uso de pantallas inteligentes de los niños

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ABSTRACT

This study presents an explanatory Ordinary Linear Regression Model for predicting wellbeing in the use of smart screen devices among children and youngsters in Spain, using a database of microdata for a total of 23,860 national representative households and some 6,106 total cohabiting minors under 15 years of age. The World Health Organization actively recommends children and youngsters to spend less hours in front of smart screen devices and encourages substituting them with more active play and direct socialisation. The main purpose of our research is to study the impact of the use of these devices on mental and physical well-being, sleep pattern, and the potential explanatory effects. To address the analysis, we contrasted the modelisation model proposed with microdata provided in the 2017 version of the National Health Survey in Spain. We performed a series of ordinary least square regression models OLS, obtaining significant information on the effects and risks excessive use of smart screen devices may be inflicting on children and adolescents in Spain. As a main result, we contrasted with the data and the modelisation that those individuals who use these devices more intensively have higher risk of mental health problems, significantly reduced sleeping hours and have a higher chance of suffering physical health problems such as obesity.

RESUMEN

Este artículo presenta un Modelo Lineal General de Regresión para predecir el bienestar en el uso de pantallas inteligentes entre niños y jóvenes en España utilizando una base de datos de microdatos para un total de 23.860 hogares representativos nacionales y unos 6.106 menores cohabitantes de menos de 15 años. La Organización Mundial de la Salud recomienda activamente que los niños y jóvenes pasen menos horas frente a las pantallas inteligentes y alienta sustituirlas por un juego más activo y físico acompañado de socialización directa. El objetivo principal de nuestra investigación es estudiar el efecto del uso de estos dispositivos en el bienestar mental y físico, el patrón de sueño y los posibles efectos explicativos que se derivarían. Para abordar el análisis, comparamos la modelización propuesta con los microdatos proporcionados por la versión 2017 de la Encuesta Nacional de Salud en España. Ejecutamos una serie de modelos de regresión de mínimos cuadrados ordinarios MCO, obteniendo información significativa sobre los efectos y con ella sobre los riesgos que el uso excesivo de estos dispositivos pudiese estar infligiendo en niños y adolescentes en España. Como resultado principal, hemos contrastado con los datos y la modelización que las personas que usan estos dispositivos con mayor intensidad tienen un mayor riesgo de padecer problemas de salud mental, han reducido significativamente sus horas de sueño y tienen una mayor probabilidad de sufrir problemas de salud física como obesidad.

KEYWORDS | PALABRAS CLAVE

Media consumption, child audiences, obesity, health, TIC, linear regression model.
Consumo mediático, audiencias infantiles, obesidad, salud, TIC, regresión lineal ordinaria.

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1. Introduction and object of investigation

Research on children's habits of use and consumption of smart screens has received renewed attention in the last decade in our social context. The fifth AIMC Niñ@s-Children study in Spain (AIMC, 2019) already indicates that children aged six to nine have 35.4% and 8.8% access to a private tablet and smartphone, respectively, reaching 47.8% and 61.6% in age groups between 10 and 13 years.

The diffusion of smart screens like smartphones and tablets broadly reached 85% and 60% respectively among adolescents under the age of 18 in Spain. On the other hand, there is a need to build methods and systems for measurement, monitoring and evaluating children's and adolescent's usage habits and consumption of smart screens. This study shows the results of the analysis of simultaneous OLS (Ordinary Linear Regression Models) modelling the habits of use and consumption of children under 15 in Spain.

Quantitative and qualitative research on children, media and smart screens is an area of analysis that has been established as a research niche in the disciplinary field of Communication both at the national and international levels, in research associations such as ECREA, the European Communication Research and Education Association, in its thematic section Children Youth and Media and ICA, International Communication Association, in its section-division, Children Adolescents and Media in the last decade.

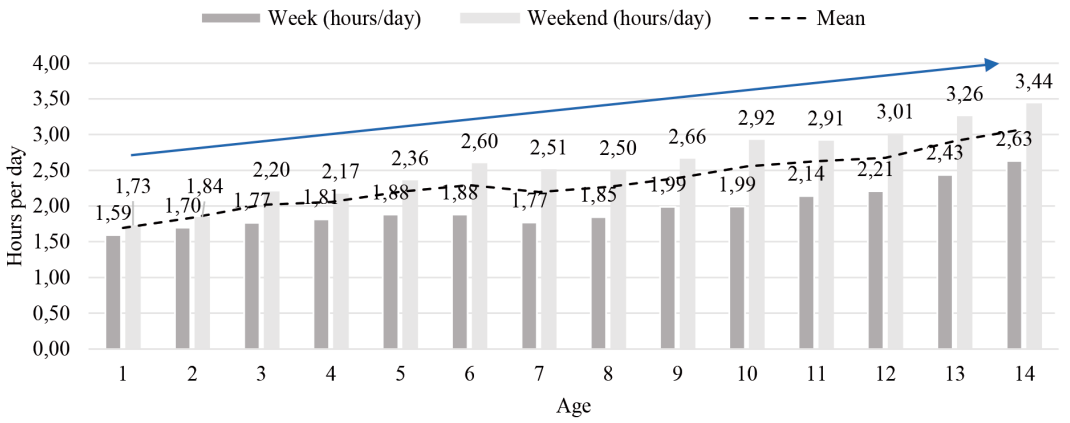
Research on children and the Internet, its risks, threats, and opportunities dates back to research carried out in the last 15 years by teams led mainly by Sonia Livingstone, Cristina Ponte and Elisabeth Staksrud (Livingstone & Blum-Ross, 2020, Livingstone et al., 2018: Ponte et al., 2019; Ponte & Batista, 2019; 2018; Staksrud et al., 2013) with the different editions of the Kids Online and Global Kids Online research projects. The research in this area has been complemented by the work performed by the Common Sense Media organization since 2013, and in particular its research on children from Zero to Eight in its first edition in 2011 and subsequent work (Common Sense Media, 2011; Rideout & Robb, 2019), as also relevant is the research linked to media literacy by Jackie Marsh's team at the DigiLitEY Cost Action at http://digilitey.eu/ and other associated research is also a significant example of the interest and progression on this research niche.

More current research has focused on the increase use of smart screens at younger ages, using interdisciplinary techniques and approaches to study these phenomena (Crescenzi-Lanna et al., 2019), and fostering continuous research on the risks, rights, ethical issues and opportunities for the younger generations (Livingstone et al., 2020; 2018). Our research follows the results of the Children and Media Section of the ECREA association, and its recent congress (www.childrenandsmartscreens.eu). The study focuses on contrast correlations linked to consumption patterns in Spain among youngsters, through data modelling using an Ordinary Linear Regression approach. The data was provided by the Spanish National Research Institute, and in particular the representative National Health Survey (National Health Survey, 2017).

One of the relevant variables in defining smart screen consumption patterns among children is connected to the quantification, and the measurement of the daily hours spent by children from 1 to 14 years of age in Spain. There is a correlation in the consumption during the week and during the weekend. Children aged 1 to 6 spend between 1.59 hours and 1.88 hours in front of a smart screen on weekdays and between 1.73 hours and 2.60 hours during the weekend. Consumption of these devices progressively increases to 3.44 hours and 2.66 hours during the weekend, and weekdays respectively. The data analysed show that one of the main activities of our children and adolescents involves spending time in front of smart screens. The tendency increases steadily with age and shows that the time spent is strongly related to sedentarism and consumption of audio-visual content.

The data provided by the Research AIMC Niñ@s 2019 indicates that children between 6 and 13 years of age spend an average of 5 hours a day in front of a screen, 89% of them consume videos from the Internet and 36% do it on a regular daily basis. Smartphones, tablets, televisions and gaming consoles are equally preferred, and Spanish children have an average of seven technological devices at their disposal at home, and an average of four devices for regular use in children from 6 to 13 years of age (AIMC, 2019).

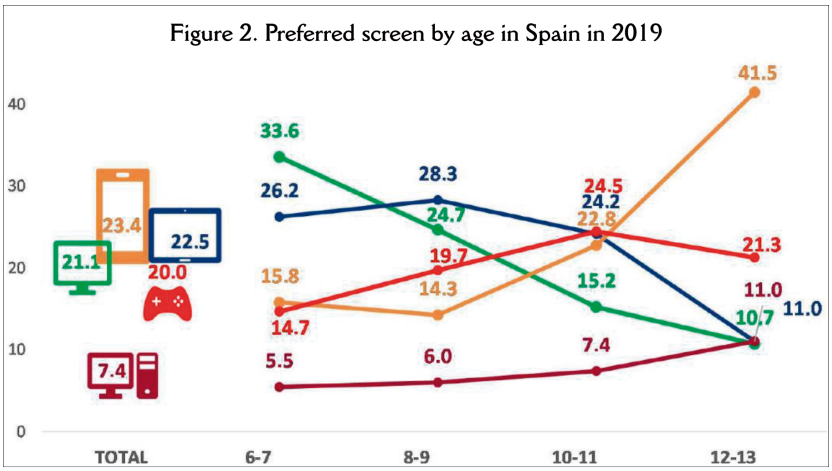
Figure 1. Connection between the number of daily hours in front of smart screens for children and their age (on weekdays and the weekend) in 2017



Note. 'Authors' from the National Health Survey (Spain, 2017).

It is also important to indicate, as we illustrate in the following graph, that with age, smartphones and gaming consoles become increasingly important for preadolescents of 12 to 13 years old, with a 41.5% and 21.3% preference increasing and reversing preferences regarding television screens and tablets. The younger generation uses tablets and television for co-viewing to favour parental supervision, and progressively as they become independent, more autonomous smartphones and gaming consoles prevail.

Figure 2. Preferred screen by age in Spain in 2019



Note. AIMC Niñ@ report 2019 (AIMC, 2019), graphs indicate years of age, data in preference percentage.

It is also important to note that on the aggregate, smartphones and tablets are preferred gadgets for girls whereas gaming consoles and tablets and television lead boys' preference in Spain similarly. The gaming console is still marginal with only 5% use for girls (AIMC, 2019). There is a clear gender-related difference in device sharing patterns and preferences linked primarily to audio-visual content, availability and cultural consumption patterns among these age groups in western society.

Relevant research on children, media and health issues such as obesity has been undertaken in recent years by Kenney and Gortmaker (2017), Robinson et al. (2017) and Borzekowski (2014). These authors analysed the impact of media use on children's weight and adolescents' media use on health respectively, as well as research on emotional well-being linked to digital media consumption and exposure (Hoge et al., 2017) or health-related social media (Goodyear et al., 2018) among others.

The research project we present in this article is part of a study led by Rey Juan Carlos University and the University of Salamanca in Spain. A description of the research can be found on www.mapcom.es.

You may also consult the research instruments, data matrixes, scientific publications and presentations at the most relevant conferences. In this article, we present the results of the research on children and its most relevant conclusions after data collection.

2. Methodology and sample data

For its most recent available data, our research uses as its main database the National Health Survey from the National Statistical Institute in Spain (National Health Survey, 2017). This is based on a five-year cross section that collects cut data on the household characteristics, the number of adults, and in particular those aged 65 and above and under 15 years of age. For our study, we used the data set of households with children under 15 years of age, as this age group is the most suitable for answering the research questions on children. This database consists of microdata for a total of 23,860 national representative households who have 6,106 cohabiting minors under 15 years of age. The possibility of analysing households' sociodemographic data is of interest, and variables such as household size, composition or the employment situation of its members were taken into account. The access to the data set on minors below the age of 15 provides the practical opportunity to analyse their characteristics, emphasising those variables related to behaviour and mental health linked to the usage and consumption of smart screens and media. The distribution of children by age in our data set is according to the age structure of Spain´s population, balanced in quotas of ages and gender (National Health Survey, 2017).

The empirical strategy we have fostered comprises the following theoretical set. The strategy used to identify the impact that the amount of time per day children spend in front of a device with a screen has had on children's health is the estimation of series of OLS (Ordinary Linear Regression Models) modelled in all cases for each of the dependent variables (emotional, companionship, behaviour, sleeping time, body mass index, and obesity). A general procedure to follow the regression models is expressed as follows:

$$Y_i = \beta_0 + \beta_1 Pantalla_i + \beta_2 X_i + \varepsilon_i$$

Where γ_i represents the aggregated health of the individual. Thus, $Screen_i$, represents the number of hours per day that children spend in front of a device with a screen and χ_i , represents the set of control variables introduced in the model. Finally, ε_i represents the error term of the estimates.

The ordinary least squares model is one of the most extensively used linear regression models in different disciplines, particularly in medicine, economics and sociology. Some studies refer to its effectiveness in predicting the effects of some variables on others (Wooldridge, 2010, Shepperd & Macdonell, 2012). Various researchers in the field of social science have applied the ordinary least squares method to estimate impact, like Sturman (1996) and Choi (2009) among others.

Thus, we prefer using OLS over non-linear alternatives (i.e., probit or logit models) to favour consistency over efficiency, as suggested by Angrist and Pischke (2008). Linear models ensure consistency as long as the given disturbance and the covariance do not correlate, and therefore, do not require any additional assumption about the functional form of the error term. In this sense, the ordinary least squares method allows us to identify and know the effect of one or several variables on the one corresponding to the study object. According to Angrist and Pischke (2014), the OLS model reliably explains the impact regardless of the particularities of the variables. The consistency of the methodology applied in our research has been frequently proven in prior investigations in the social sciences.

3. Results and descriptive statistics

The analysis of the results includes the descriptive statistics that define the characteristics of the sample. As for the variables of the study object of this article, we must highlight that the average of those related to the use of screens, among the population below 15 years of age is around 2.44 hours a day. Specification of this data show that the average daily use of 2.05 hours in weekdays as opposed to the weekend where the consumption is much more intense at 2.72 hours per weekend day. Adolescents have a differentiated time consumption distribution following cultural and behavioural patterns between weekdays and weekends regarding specificity of each country. On the other hand, we have the variables that we want to explain and interpret within the model. Among them, we can observe, for example, that the average body mass

index of children is 16.85 kg/m2 or that the average number of hours of sleep of children within the data set is of 9.75 hours per day. Thus, the following table describes the characteristics of the sample, both for the explanatory and control variables, and to explain the variables. The following table accurately indicates the data analysed representing mean, standard deviation, maximum, and minimum.

Table 1. Descriptive statistics of the OLS

	Mean	Standard deviation	Min	Max
Use of screens (hours per day)	2.446	1.125	1	10
Use of screens (hours per day - week)	2.052	1.129	1	10
Use of screens (hours per day - weekend)	2.727	1.372	1	12
Emotional	0.709	0.454	0	1
Companionship	0.623	0.4846	0	1
Behaviour	0.715	0.451	0	1
Sleep time (hours)	9.751	1.583	1	20
Body Mass Index (BMI)	16.85	6.130	0.030	50
Obesity	0.015	0.121	0	1
Household unemployment rate	0.158	0.286	2	1
Household size	3.811	0.981	0	12
% of women in the household	0.292	0.454	0	1
% of retired people in the household	0.012	0.062	0.100	0.666
% of children in the household	0.414	0.123	0	0.833
Average educational level	0.613	0.407	0	1
Sex	0.481	0.499	0	1
Age	7.557	4.300	0	14
Nationality	0.947	0.222	0	1
Chronic disease	0.154	0.361	0	1

Note. Own elaboration from the National Health Survey (Spain, 2017).

The next table represents the results of the first five linear regression models, each one of them depending on the variable associated we want to explain. The complete programming of the data set within the STATA statistical software can be accessed on request.

Table 2. Ordinary Least Squares Regression models

	Emotional	Companionship	Conduct	Sleep time	BMI	Obesity
Use of screens (hours per day)	0.037***	0.041***	0.035***	-0.064***	0.222**	0.008***
	(0.007)	(0.007)	(0.006)	(0.016)	(0.088)	(0.003)
Household unemployment rate	0.039	0.078***	0.004	0.028	0.569*	-0.000
	(0.025)	(0.027)	(0.025)	(0.061)	(0.342)	(0.008)
Household size	0.008	-0.020**	-0.001	0.019	-0.156	0.001
	(0.008)	(0.008)	(0.008)	(0.018)	(0.113)	(0.003)
% of women in the household	0.022	0.020	0.008	-0.107***	0.388*	0.003
	(0.017)	(0.017)	(0.016)	(0.038)	(0.212)	(0.005)
% of retired people in the household	-0.135	0.159	0.052	-0.561**	0.439	-0.028
	(0.129)	(0.123)	(0.126)	(0.278)	(1.478)	(0.038)
% of children in the household	-0.091	-0.200***	0.028	0.032	-1.735**	0.007
	(0.061)	(0.063)	(0.059)	(0.142)	(0.787)	(0.018)
Average educational level	-0.029	-0.056***	-0.033*	0.067	-0.261	-0.020***
	(0.018)	(0.019)	(0.018)	(0.045)	(0.247)	(0.006)
Gender	-0.008	-0.004	-0.052***	-0.001	0.023	-0.001
	(0.014)	(0.015)	(0.014)	(0.032)	(0.178)	(0.004)
Age	-0.027***	-0.033***	-0.029***	-0.161***	0.453***	-0.002***
	(0.002)	(0.002)	(0.002)	(0.005)	(0.027)	(0.001)
Nationality	-0.045	-0.021	0.028	0.005	0.847*	-0.004
	(0.030)	(0.033)	(0.033)	(0.079)	(0.472)	(0.011)
Chronic disease	0.066***	0.059***	0.011	0.050	0.211	0.004
	(0.019)	(0.020)	(0.019)	(0.042)	(0.227)	(0.006)
Constant	1.032***	0.851***	0.782***	11.126***	12.458***	0.025
	(0.062)	(0.066)	(0.064)	(0.151)	(0.896)	(0.020)
Observations	3,992	3,992	3,992	3,992	3,992	3,992
R-squared	0.082	0.112	0.094	0.301	0.127	0.017

Note. Prepared by the authors from the National Health Survey microdata set (Spain, 2017). Robust standard errors in parentheses. Significance: *** p<0.01, ** p<0.05, * p<0.1. All models include region as control variable.

The models show how, the average effect of using display devices (understood as the average daily use on weekdays and the weekend) increases the probability of suffering emotional, behavioural or problems in social interaction of children with their peers. It also has a similar positive impact on the body mass index and the risk of obesity. In other words, the more the screen devices used, the higher the body mass index detected within the OLS (Ordinary Linear Regression) model. By comparison, the coefficient linked to the total sleep time is statistically significant and negative. This can be interpreted as follows: more hours in front of the screens have a direct effect on the reduction of children's sleep duration, with the subsequent health implications.

To contrast the results and make them more reliable, we have simultaneously used the same models, but in this case, detailing the impact of the use of smart screens per hours/day during the week (from Monday to Friday) and hours/day during the weekend (from Saturday to Sunday). Table 3 shows how the usage frequency, screen consumption and the impact trend are repeated throughout the five models used for the days of the week. It is relevant to note that the set of results has increased in significance for some of the models concerning the prior matrix of results as indicated in the following table. The coefficient relation remains stable and intensifies during the weekend.

In Table 3, we also analysed the results of the use of smart screen devices during the weekend in Spain among the studied population. Thus, we again find that the results hardly vary in terms of significance; however, the impact on the explanatory variables is more intense as in the OLS (Ordinary Linear Regression) model for weekday consumption.

Table 3. Ordinary least squares regression models. Frequency of hours of use during weekdays and the weekend

	Emotional	Companionship	Conduct	Sleep time	BMI	Obesity
Use of screens (hours per day – weekday, Monday to Friday)	0.034***	0.046***	0.034***	-0.047***	0.188***	0.008***
	(0.007)	(0.007)	(0.006)	(0.016)	(0.068)	(0.003)
Observations	3,974	3,974	3,974	3,974	3,974	3,974
R-squared	0,082	0,104	0,091	0,294	0,110	0,017
Use of screens (hours per day - weekends)	0.021***	0.023***	0.027***	-0.066***	0.142***	0.007***
	(0.005)	(0.006)	(0.005)	(0.012)	(0.053)	(0.002)
Observations	4,423	4,423	4,423	4,423	4,423	4,423
R-squared	0,070	0,097	0,092	0,304	0,124	0,017

Note. Prepared by the Authors from the National Health Survey (Spain, 2017). Notes: Robust standard errors in parentheses. Significance: *** p<0.01, ** p<0.05, * p<0.1. All models include large set of control variables.

The data set from the National Health Survey and our OLS (Ordinary Linear Regression) model detected that the average impact effect of the use of screen devices increases the probability of suffering emotional, behavioural or social interaction problems for the children with their peers. Parents who do not supervise and monitor screen time consumption may experience a significant increase in children's bad behaviour. Similarly, our dataset modelling has observed a positive impact on body mass index and the risk of obesity. The more screen devices used, the higher the body mass index detected within the OLS model for Spain within the data set for year 2017. On the other hand, the coefficient relation for the total sleep time is statistically significant and negative, which may be due to the fact that a large number of hours in front of the media screens has a direct effect on the reduction of children's sleep time, with the subsequent implications. Therefore, we detected a sharp contrast and confirmed for the first time in Spain that there is a negative relationship effect in aggregated general health γ_i . In other words, a rise in screen time consumption increases the probability of obesity, a higher body mass index, and behavioural incidents with peers and companions.

4. Discussion and conclusions

The production of knowledge is associated with significant changes in collective attention, which is consistent with a scenario in which the allocation of attention to a topic or platform stimulates the demand in a like economy (Gerlitz & Helmond., 2013). Adolescents are considered a vulnerable group as they are easily influenced and may therefore develop problems in consumption patterns such as smart

device consumption. This means that more focus is put on detecting time allocation patterns, interest and addictions at a younger age for different economic, social and health issues. This emerging tendency and research field of interest has been identified in our academic sphere by Gomes-Franco-Silva and Sendín-Gutiérrez (2014), among others, indicating the risk of this to become pathological, and the need for early detection of disorders aggravated by the everyday practices in the digital environment among adolescents in Spain.

Our research follows a complementary pathway to the studies undertaken by EU Kids Online network and Global Kids Online led by Sonia Livingstone (Trucco & Palma, 2020; Livingstone & Blum-Ross, 2020; Ponte & Batista, 2019, Stoilova et al., 2019) and the recent results presented from nineteen European countries (Smahel et al., 2020). At national level, significant research and transnational, national and regional projects have made efforts in this line of research (Jiménez et al., 2018), and made it possible to progress on pillars such as the digital life of children and adolescents by implementing different views, themes, methodologies and transdisciplinary approaches (Rich et al., 2015, Montes-Vozmediano et al., 2018; Ponte et al., 2019; Mascheroni et al., 2018; Helsper, & Smahel, 2019) providing the research field with a more diverse approach and transnational collaboration. This article provides a data method to supplement research on children, youth and media, and detecting their time allocation and potentially the positive and negative effects, which may arise.

In this context, the analysis of a total of 23,860 national representative households and some 6,106 total cohabiting minors under 15 years of age have provided with robust and conclusive results for these age groups in Spain. The significant conclusions of the OLS (Ordinary Linear Regression) models are innovative and were obtained with robustness for the first time in our country. We have positively contrasted the indicated patterns and relations between the variables within the models analysed. The following table summarises the main conclusions, weaknesses, detected threats, strengths and opportunities for present and future research in this field. In our research, we have identified the main weaknesses, threats, strengths and opportunities detected. We have confirmed and detected with reliable and representative data that there is a health crossroad effect for children and their families in Spain.

Table 4. Detected Weaknesses, Threats, Strengths and Opportunities for the OLS modelling

Weaknesses of the OLS and results	**Threats to children youth and families**
1. There is a need to run the OLS (Ordinary Linear Regression) models in a longitudinal pattern, analysing the effect and relations detected regularly. We will only have access to data from 2022, since the National Health survey is undertaken every 5 years, the next microdata set will be available in 2023. 2. The model has not detected significant weakness; however, we consider that contrasting within gender, regional and family income differences between households and cohabiting minors may be an interesting fostering second phase given the availability of these data.	1. The average impact of the use of screen devices (understood as the average use in hours during the week and the weekend) increases the probability of suffering emotional, behavioural or social interaction problems for the children with their peers. 2. The average use of screen devices has a positive impact on the body mass index and the probability of suffering from obesity. In other words, the more screen devices are used, the higher the body mass index among children. 3. The coefficient relation on the total sleep time is statistically significant and negative, thus more hours in front of screens has a direct impact on the reduction of children's sleep time, with further implications for their health. 4. The non-formation of families and the use of parental controls or safeguards for children on the Internet (Yubero et al. 2018; Valcke, 2010) and in particular on smart screens.
Strengths	**Opportunities**
1. Robustness of the data set provided by the National Health and robustness of the five applied OLS models. 2. The possibility to run cross variable inferences and effects in a longitudinal manner in Spain, and the possibility to carry out a national and European comparison.	1. Continue to detect connections on the analysed variables within the OLS modelling. 2. Continue to evaluate the evolution of the threats detected in a longitudinal manner. 3. To analyse data contrasting gender, regional and family income differences. 4. The possibility to run European and Global OLS models where data may be available from equivalent National Heath Survey.

Note. Prepared by the Authors based on the conclusion of the OLS model and research data.

Our OLS (Ordinary Linear Regression) model has detected that the average effect of the use of screen devices increases the probability of suffering emotional, behavioural or social interaction problems for children with their peers. Parents who do not supervise and/or monitor screen time consumption may experience a significant increase in their children's bad behaviour. We have also detected a positive impact on body mass index, and the risk of obesity. The more screen time, the higher the probability. The total coefficient relation on total sleep time is statistically significant and negative, thus indicating that more time in front of media screens has a direct effect on the subsequent reduction of children's sleep.

The continuous evolution of our society in normal and/or COVID-19 pandemic times is intensively transformed by renewed time allocation and media consumption patterns. The accessibility of content and direct protection and supervision provided for our children and adolescents of their screen time is a key to the transformation variable for present and future generations. We have detected that the average impact of the use of screen devices (understood as the average use in hours during the week and the weekend) significantly increases the possibility of suffering emotional, behavioural or social interaction problems for the children with their peers. Explaining this impact is certainly multivariate in conceptualisation; however, its long term effect on our society is certainly not neutral, and should, therefore, be seriously tackled by researchers, legislators, parents, educators, doctors, content providers, in general, all those caregivers who have a "duty of care" for our children and adolescents. We have also detected that the average effect of the use of screen devices has a positive impact on the body mass index and the probability of suffering from obesity. In other words, the more screen devices are used, the higher the body mass index is among children. These results link a clear event correlation and conclusion. If children and adolescents' time allocation pattern in Spain primes the non-active, non-participatory, non-supervised, non-physical activity linked to traditional smart screen consumption, our children will have negative effects on their health, in the short and medium term, since obesity and a higher body mass index are good health predictors. The instruments are not certainly the cause of these health problems among our younger generations but can be the symptom of an incorrect time allocation, physical inactivity and sedentarism in our modern western societies. Furthermore, the coefficient relation on the total sleep time is statistically significant and negative, which may be understood as the more hours in front of the media screens has a direct effect in the reduction of children's sleep time, with the subsequent effects for an appropriate physical and mental development. Inappropriate sleep time, inadequate traditional siesta planning for Spanish children and adolescents may also trigger inadequate patterns and short and medium term negative effects on the variables detected but also on educational results, the conflict in the school, mental health, and other medical issues related to lack of sleep time.

The research on the usage habits and consumption patterns of smart screens in our socio-cultural environment seems to be an object of study, which will undoubtedly be performed in depth from the field of communication and education studies, among others, in the next decade. The results presented in our article certainly open future research lines, which will necessarily lead us to analyse other age segments, gender differences and differences between regions. Comparative analysis of countries and potential specific population groups may be an interesting area to promote future research. The need detected in academic research, in families and health institutions to protect children's health and well-being related to screen time, and content access, among others has a final result. We have detected and confirmed the impact, if we may use the metaphorical parallelism, the screen time allocation the "Black Whole" is "devouring" behaviour in, sleep time, body mass index and obesity in our children. It is undoubtedly time for action and reaction.

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