

## Original article

## Childhood, families and the Internet: a qualitative approach on health assets

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## ABSTRACT

**Objective:** To explore the views of the Internet in childhood, identifying both health assets and risks.**Method:** A qualitative study was performed using 14 focus groups, eight of which comprised boys and girls, four of which comprised parents and two of which were mixed (children and parents) in primary schools in urban and rural settings in Andalusia (Spain). Teachers in these schools were also asked to complete an online questionnaire using LimeSurvey. This study involved 114 individuals: 64 pupils (33 girls and 31 boys), 28 parents (18 mothers and 10 fathers), and 22 teachers (14 women and 8 men). Analysis of manifest content and underlying meanings was carried out. QSR NVivo 9 software was used to facilitate analysis and make it systematic.**Results:** Our findings show how the differences in the way parents and children understand health and wellbeing affect the way they discuss the Internet and health. The discussion of results looks at the implications of computer literacy for public health and wellbeing, particularly with regard to health assets.**Conclusions:** Parents and children understand the contribution of the Internet to health and wellbeing differently. Whilst parents emphasize the risks (unsafe environment, relationships and quality of information, social networks, physical problems and addiction), the children emphasize the assets offered by the Internet.© 2019 SESPAS. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Infancia, familias e Internet: un enfoque cualitativo sobre activos para la salud

## RESUMEN

**Objetivo:** Explorar la visión de Internet en la infancia, identificando riesgos y activos para la salud.**Método:** Estudio cualitativo con 14 grupos focales: ocho con niños y niñas, cuatro con familias y dos mixtos con niños/as y familias en centros de educación primaria de los ámbitos rural y urbano en Andalucía (España). También se aplicó un cuestionario *on-line* al profesorado de los centros educativos. En total participaron 114 personas (33 chicas y 31 chicos; 18 madres y 10 padres; 14 maestras y 8 maestros). Se llevó a cabo un análisis de contenido manifiesto y contenido latente, utilizando el *software* QSR NVivo 9 para facilitar dicho análisis y hacerlo más sistemático.**Resultados:** Los resultados ponen de manifiesto cómo la forma diferencial de entender la salud y el bienestar entre padres/madres e hijos/as influye en la orientación de los discursos sobre Internet y salud. Los resultados son discutidos ampliando el debate existente en torno a las implicaciones en salud pública de la alfabetización digital y su conexión con el enfoque de activos para la salud.**Conclusión:** Las familias y la infancia entienden la contribución de Internet a la salud y al bienestar de manera muy diferente. Mientras los padres y las madres enfatizan los riesgos (ambiente inseguro, relaciones y calidad de la información, redes sociales, problemas físicos y adicciones), los/las niños/as se centran en enfatizar las potencialidades de Internet, descritas como activos.© 2019 SESPAS. Publicado por Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Palabras clave:

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## Introduction

Internet is consubstantial with the social development and wellbeing of individuals and communities.<sup>1</sup> In the everyday lives of boys and girls, the Internet is beginning to have an effect on the

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relationship between children and their parents and the role of schools in socialization,<sup>2</sup> given that it has become an essential tool for gathering information, communicating, doing schoolwork, having fun and engaging in social media.<sup>3</sup>

There are currently more than 13 million family homes in Spain with Internet access, i.e. 86.4% of homes. Among children (10 to 15 years old) a high percentage of them (95.1%) use these technologies a great deal, to the extent that computer use can be considered almost universal, whilst 93.6% of them use the Internet regularly.<sup>4</sup> According to data from the Ministry of Education and Vocational Training, in 2016/2017 school year, the 60.4% of primary public schools had an Internet connection. Andalusia was one of the pioneer regions in Spain in terms of establishing safety and risk-prevention measures for Internet use and for promoting the use of information and communications technologies (ICT) in educational processes. These measures are within the framework of what is known as the Andalusia Information Society Plan 2007-2010.<sup>5</sup> Among the actions launched was the Schools ICT 2.0 program, which gives pupils in the third cycle of primary education (10-12 years old) free access to a computer for doing their schoolwork. The program likewise promotes the regular use of numerous digital resources in the classroom (digital blackboards, projectors, etc.).

The importance of computer literacy is acknowledged in the public health sphere,<sup>6,7</sup> where it is understood as the outcome of managing the cognitive and social skills which determine the capacity of each person to access, understand and use information which helps them stay healthy.<sup>8</sup> Placing quality, credible resources which are positive factors for health and wellbeing on Internet spaces used by minors is crucial for promoting health.<sup>9,10</sup>

Issues with the Internet can be described through three prisms: content, contact and conduct, referring to children as receivers of inappropriate content via the Internet, inappropriate contact with adults, and conduct as the victims or perpetrators of activities by means of peer-to-peer group exchanges.<sup>11,12</sup> These perspectives connect positively with the six action-oriented “c’s” set out by Bers<sup>13</sup> in the Positive Technological Development model: community-building, content-creation, communication, conduct, collaboration and creativity. This positive trend, closely linked with the salutogenic focus of health promotion,<sup>14</sup> and justifies exploring the viewpoints of childhood in relation to the assessment of the Internet made by children, their teachers and families as an environment which promotes health and wellbeing.<sup>15</sup>

Assets for health and wellbeing are the factors or resources at individual or community level which can generate wellbeing.<sup>16</sup> The Internet can generate these assets for the everyday lives of children and their parents.<sup>17,18</sup> To determine what these assets are, the opportunities and advantages offered by using ICT and the Internet as a health asset must be examined.<sup>19,20</sup> The scientific literature has been promoting the idea that health and quality of life are best perceived by individuals who, from a very early age, state that they have more health assets, developing their intellectual and emotional potential and making use of the resources they have at hand.<sup>21</sup> The assets model (health resources) thus offers opportunities during childhood to surf (live and develop) the Internet in a salutogenic manner, with the emphasis on the map of solutions rather than on the map of problems, thinking about what generates health and makes it easier to be healthy.<sup>22</sup>

Along similar lines of research, the notion of wellbeing has been particularly associated with the possibilities for communication and entertainment offered by the Internet.<sup>20</sup> It has been shown in the field of public health that perception of health and quality of life are strongly affected by a sense of the social, contributing to the formation of networks and the development of social capital.<sup>23</sup>

From this perspective, families and schools play a key role in children’s digital literacy, for example by enhancing access to

health content and information search strategies. Studies in this field, which have focused on understanding the direction taken on by such processes contributing to the development of skills for eHealth literacy self-management and control, remain limited. All of this flags up the need to study, in greater depth and in different contexts, the potential of technologies for positive childhood development.<sup>2</sup> The aim of this paper is to explore the views of the Internet in childhood, identifying both health assets and risks. To do this, the ideas commonly found in the discourse of parents and children are described. These ideas are complemented by the contributions of teachers in direct contact with these parents and pupils, and enables Internet use to be understood from the assets model.

## Methods

This research was undertaken in state primary schools in Andalusia, southern Spain. The study was carried out a qualitative design based on focus groups made up of children and parents between January and June 2012. We also interviewed to schoolteachers based on open questions using LimeSurvey.

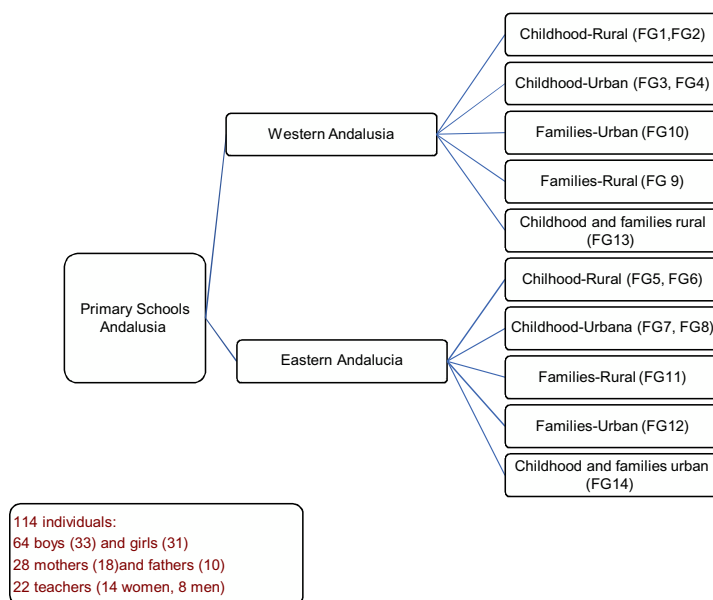
## Sampling

The research team conducted its search for participants via independent networks in order to give greater external validity to the process and reduce bias in the selection of sample units. Finally, using a non-probabilistic and intentional sample, according to theoretical sampling based on typical and homogenous cases, fifth-year primary school classes were selected from eight primary schools; they were part of a representative sample of schools included in a quantitative study carried out in parallel by the same research team. Specifically, recruitment was as follows: pupils aged 10 and 11 years old, fathers and mothers of kids in the schools selected, and teachers in the schools selected. The classrooms themselves were selected on the basis of four inclusion criteria: 1) they were in state schools; 2) they were included in the regional ICT program for schools; 3) they were located in eastern or western Andalusia; and 4) they were schools in rural or urban locations. In the case of criteria (3) and (4), these were not considered in order to establish comparisons in the analysis phase, but rather to maximize the opportunity for exploring different perspectives of the study object. Finally, using these criteria, the segmentation strategy was created involving 114 individuals: 64 pupils (33 girls and 31 boys), 28 parents (18 mothers and 10 fathers), and 22 teachers (14 women and 8 men) that belong to the study classrooms (Fig. 1).

## Data collection

Fieldwork was carried out in three complementary stages: 1) in stage 1 (S1), eight focus groups with children were set up, one for each class selected from the sample according to the four inclusion criteria and with teachers not being present while the group session was conducted; 2) in stage 2 (S2), four focus groups were set up with parents and two mixed focus groups of kids and parents not belonging to the same family, in order to encourage them to express themselves more freely; and 3) in stage 3 (S3), 22 e-surveys with the teachers of the classes taking part in the study were carried out. In each focus group, one of the researchers conducted the sessions, and a second researcher recorded them and made notes. None of them knew the participants.

The topic guide which served as protocol for performing fieldwork throughout the three stages (S1, S2 and S3) was designed by the research team on the basis of a literature review and was ultimately structured in four dimensions: 1) the Internet as a component for well-being in relation to the social context; 2) the



**Figure 1.** Sample. Childhood, families and teachers.

**Table 1**

Topic guide.

<p><i>Kids:</i></p> <ul style="list-style-type: none"> <li>• What do you think about doing things on the Internet in order to feel good?</li> <li>• What do you think about having friends on the Internet?</li> <li>• What do the adults and your family think about de things you do on the internet?</li> <li>• How do you think learn about health om the Internet?</li> <li>• How does the Internet teach about healthy things?</li> </ul> <p><i>Parents and teachers:</i></p> <ul style="list-style-type: none"> <li>• What do you think about the activities of your children/pupils on the Internet?</li> <li>• What do you think having friends on the Internet affects your children/pupils?</li> <li>• What do you think your children/pupils learn via the Internet?</li> <li>• How do you think people learn about health on the Internet?</li> <li>• How does the Internet teach about healthy things?</li> </ul>
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Source: own elaboration based on Livingstone et al.<sup>12</sup> and Moreno-Rodríguez et al.<sup>31</sup>

Internet for the family well-being; 3) the Internet for well-being in relation to peers; and 4) the Internet as source of information for health-related topic and health habits. This topic guide (Table 1) was always applied flexibly enough to adapt it as far as possible to participant narratives. In overall terms, the focus groups covered issues such as the Internet as a provider of information on health-related areas and healthy habits; the Internet as something relating to others, and the Internet as something relating to childhood wellbeing and family. In particular, during S1, the focus groups were useful for obtaining first-hand knowledge of children's viewpoints; comparing them in S2 with the ideas and perceptions of parents. In addition, the themes included in the teacher e-survey in S3 of the fieldwork shed greater light on ICT use in daily classroom activities and enabled us to compare the opinions of teachers with the opinions expressed by boys/girls and fathers/mothers alike in each of the participating schools. All the data gathered in the focus groups were recorded in full and transcribed literally; the average length of each group session was 40 minutes. Data generated by the teacher e-survey with open questions were downloaded in a format permitting text analysis. These transcripts were completed by comparing them with research team and observer fieldwork notes. Each focus group was performed and developed by members of the research team who in a planned manner sometimes adopted the role of interviewer and sometimes of observer.

## Analysis

QSR NVivo 9 software was used to facilitate analysis and make it systematic. Analysis of manifest content and underlying meanings was carried out, enabling the emerging model of the study to be defined.<sup>24</sup> After a first general reading of the transcripts, one researcher conducted an initial (inductive) codification unrelated to previously defined categories, whilst another carried out a (deductive) identification of codes and categories based on key terms found in the literature. Once both proposals had been analyzed, a consensus was reached on criteria for thematic units of interest and codification guidelines. Process reliability was enhanced by selecting several analysis units from the different groups (kids, parents, mixed –kids and parents– and teacher e-survey) and checking the topic guide before all of the material was codified. This procedure permitted comparison of the categories developed with other team members, testing the level of consistency and ironing out any discrepancies. All analysis units (narrative texts) were therefore encoded on the basis of the categories previously defined. The categories or sub-categories which emerged during exploration of narratives were also included in the analysis and contributed to the development of the theoretical emerging model.

The credibility of the findings obtained was reinforced by a triangulation process which involved the research team in three complementary processes: searching for redundancy between the narratives, alternating the role of observer or moderator during field work, and the encoding process being reviewed by different members of the research team. Similarly, the reliability of the analysis and the information process generated was reinforced by ceasing to collect data at the point when discourses provided no further information on the topic being studied (theoretical saturation).

## Ethics

The Spanish privacy and confidentiality framework (Personal Data Protection Act, LOPD 15/1999) was used to obtain consent from participants. The research protocol was approved by the school boards of each primary school and by the research committee of the principal researcher's institution. All the respondents

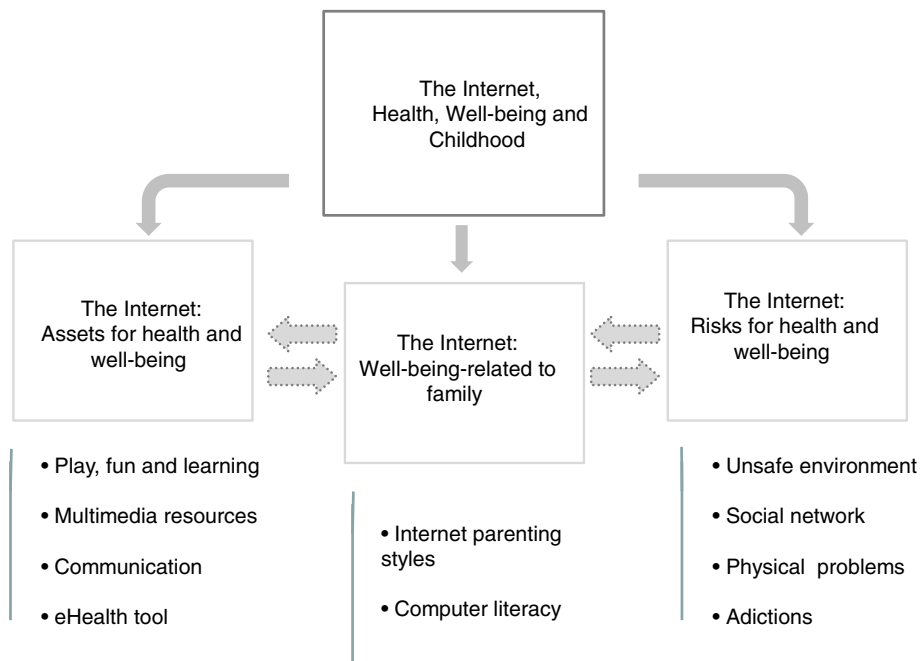


Figure 2. Emerging model.

participated voluntarily in the study and they received information on the objectives of the study as well as on the institutions involved. All participants signed an informed consent form; in the case of participating minors, consent from their parents or guardians was also required. The interviewees whose comments are given verbatim below to illustrate our findings are referred to using a pseudonym.

## Results

The findings of this study are presented following the theoretical model of categories which emerged during the analysis (Fig. 2). This theoretical model synthesizes the elements which were considered the main health assets of the Internet for childhood wellbeing, fundamentally described in terms of resources and skills. In order better to understand the study object, considerations regarding assets have also been linked to the risks identified by the children and parents participating in this study. The opinions of teachers as regards specific relevant areas of results have also been included to provide a comparison between children's and parents' views.

### *The Internet has assets and risks for health and wellbeing*

For the children taking part in the study Internet was seen as a positive tool that can facilitate the constructive use of free time not only in terms of searching for information for schoolwork, but also for developing basic literacy skills and knowledge by means of the use of multimedia resources (Table 2 a).

Schoolchildren referred to the communication and multimedia resources as Internet assets in relation to its potential for promoting interpersonal relationships. Thus, "sharing things" such as videos and photos, was seen as a way of strengthening family and peer ties. From this perspective, the children viewpoint was also connected to the idea of Internet use as a source of wellbeing for its significance to generate a sense of belonging (Table 2 b).

The teachers also highlighted the important role that networks start to play in young lives. They characterized to this children generation as more active producers of their identities, within a process where the social interactions not only occur in face-to-face contexts (Table 2 c).

Parents mainly described the Internet as an unsafe environment. They underlined the quality of information accessed as a key aspect when considering whether or not the Internet is a positive learning resource (Table 2 d). Another of the concerns highlighted by the parents was their children joining social media networks; described as communication channels largely associated with exposure to deceptions, threats and, in general, with "getting into trouble". Along the same line, a view shared by parents and children was they considered that spending too much time connected with others via the Internet as impoverishing interpersonal relationships (Table 2 e). Similarly, parents stressed the repercussions that excessive Internet use can have on the physical health, favoring sedentary behaviors leading to obesity. They also associated the Internet with the emergence of problems of addiction, isolation and loneliness at these ages (Table 2 f).

### *The Internet and well-being related to the family and parenting styles*

The children consulted highlighted the need for parents to be better informed about the positive applications of the Internet; in the children's opinion, this would involve their parents not considering the Internet solely as a resource for helping with schoolwork.

Teachers also flagged up the importance of parents gaining a better understanding of what their children use the Internet for, and the need for parents to become involved in the teaching-learning process using the Internet.

Teachers consider that the level of parent knowledge and skills as Internet users is a determining factor for Internet use in the home and requires parents to become computer-literate (Table 2 g).

For their part, parents stood out that the main role must be played by the teachers, and also point out the relevant role of older siblings in the computer literacy process. However, the teachers emphasized the relevance of peer-to-peer groups in learning ICTs (Table 2 h).

Bearing in mind the importance of protecting children from the risks of the Internet, two types of conduct were mainly considered by parents: some of them acknowledged basing the relationship on control, whilst others base it on trust and dialogue (Table 2 i). Many

**Table 2**  
Results: selected supporting data.

<i>The Internet has assets and risks for health and wellbeing</i>	
a	Lucas (boy): I use it for what we're given to do at school. To look for information, and if we're not sure about something, we look it up as well. Also when we're bored we play a game or we log into the school website and revise (FG, Kids, Western Andalusia, Rural setting).
b	Alonso (boy): Instead of chatting on a social network, it's better, chat in real life. Blanca (girl): But imagine if you don't have them. . . on social networks you can have virtual friends and you feel like you're part of something (FG, Kids, Eastern Andalusia, Urban setting).
c	Carlos (teacher): As regards health, I'm not sure. As regards wellbeing, the Internet can sometimes become a place for having fun and a source of fun, for meeting, for enjoyable chats... which can sometimes be good for raising the spirits. And also, achieving the challenges they set themselves (posting a video, writing in a blog,...) improves their self-confidence.
d	Alberto (father): The thing is, practically everything is on the Internet, almost everything. But how do you know that a website is reliable? (. . .) what you all have now is a way of finding out anything wherever you are, but the problem is knowing whether the information is true or not. And I think that this is an important issue you need to be taught about (FG, Mixed, Western Andalusia, Urban setting).
e	Isabel (mother): Now it's true that they also use Internet chat to say things you wouldn't dare to say to someone's face. Children who don't talk to each other, or see each other in the street and don't say hello, then spend ten minutes chatting to each other. And the worst thing is when it can be used to be offensive. Because you're not face-to-face with them it seems as if you get bolder and are able to write in words what you're not brave enough to tell them to their face (FG, Mixed, Western Andalusia, Urban setting).
f	Tomás (father): If a child who has problems with obesity, for example, like these children who spend all their time on the computer, were to spend half the time they spend on the computer doing sport instead. The Internet is harmful to health, because spending three hours playing on the computer is not the same, for example, as being outside playing football. It's not the same. You are playing sport outdoors, running around, soaking up the sun (. . .) The Internet causes isolation, because the child is playing alone (FG, Parents, Eastern Andalusia, Rural setting).
<i>The Internet and well-being related to the family and parenting styles</i>	
g	Encarna (teacher): Little by little, and through the use they see their children making of laptops and the Internet for schoolwork, they are beginning to realize that their children learn a lot of things more easily and are more motivated. Me, for example, in the subject I teach, we have worked on a lot of health-related topics: food and digestion, reproduction, types of illnesses and their prevention..., and this helps them to see the Internet more positively as a source of information and knowledge for them and their children. (Teacher e-survey, Female, 49 years old, School in Urban Setting).
h	Manuela (teacher): Children have to be taught to check the information. Not just cut and paste it. There are big differences between pupils the first time they work with computers in the classroom. Some are completely familiar with them and others have never used them in their lives. Classmates are the best teachers, they must be encouraged to investigate the possibilities of this tool for themselves and in a very short space of time the differences in skill levels disappear (Teacher e-survey, Female, 55 years old, School in rural setting).
i	Raquel (mother): Nowadays we want to keep a much closer eye on our children. I think that we should focus more on dialogue. Perhaps I am just being very optimistic, to the point where I end up having problems, but we have all been that way. Emilio (father): In my case, I know his password and I say to myself, "I'm going to look at his emails!" and then when I start to read them I feel bad, because I don't like it when people look at my stuff (FG, Parents, Western Andalusia, Urban setting). Moderator: What do your parents think about what you do on the Internet?
j	Samuel (boy): My mum thinks it's all OK. Julio (boy): They trust me and they know I don't visit certain websites and I don't talk to people I don't know and all that. Sara (girl): Yeah, but listen, your mum knows you use social networks, but some people get into really heavy stuff. Like him (pointing to a classmate), and his mum doesn't know, or she does know but doesn't tell him off. Marcos (boy): No, she doesn't know. (laughter). Julio (boy): Well my mum, sometimes she tells me to show her my photos so she can see what they are, but I haven't got any bad stuff so I just show her and that's that. Sergio (boy): There is also software which lets you use another computer to see what sites you have visited, which is what my dad does every day (FG, Kids, Western Andalusia, Rural setting).

FG: focus group.

of them also pointed out that what for them are control measures for educational and protection purposes, their children interpret it as a sign of mistrust. Either way, the children's discourse revealed certain distinct Internet parenting styles: restrictive, unlimited and instructive. The analysis also revealed Internet parenting styles reflecting the type of relationship with children and the level of parent's computer literacy (Table 2 j).

## Discussion

This study was designed to analyze the relationship between the Internet and health assets by means of a qualitative research method enabling the views of parents, children and teachers to be triangulated.

Our findings suggest two predominant positions: 1) parents tend to relate the Internet with an impoverishment of interpersonal relationships and lifestyle risks, since they feel that it leads to children doing fewer physical, sports or play activities and engaging in less face-to-face interaction; and 2) children point out the numerous possibilities offered by the Internet for interacting with others, playing, learning, communicating and having fun. The narratives reveal that the opinions of both can be situated on different levels. Whilst the children consulted repeatedly describe topics relating to the wellbeing assets provided by the Internet

and parents emphasize its risks, teachers have a combined view of Internet risks/benefits for wellbeing. The children in the study refer positively to the idea of health by describing healthy habits or being able to share experiences in their interpersonal relationships, whilst family discourse tends to define the idea of health and wellbeing as basically being the absence of illness. This dichotomy could be considered to reflect the notion of health being promoted, more strongly imbued with the salutogenic approach in the case of children.<sup>25</sup>

The findings of this study should be understood in the light of its constraints. For a qualitative design, this study had a large sample size. Nevertheless, the sample can be considered as biased towards schools with an interest in improving Internet use for children; in effect, the design limited the sample universe to state schools enrolled in a regional ICT program. To reduce possible bias and misinterpretation of the collected information, data was jointly coded and categorized by two researchers. Furthermore, findings were discussed with the research team to improve data accuracy. The two mixed groups were suggested by the teachers; however, the discourse between parents and children was not very productive given the heterogeneity of the profiles. This research also considered the viewpoints of teachers, but their ideas were mainly used as a way of triangulating the analysis process and for enhanced understanding of the educational context of the families and



children involved in the research. On the other hand, it was not possible to perform the fieldwork from an approach that would allow us to collect additional evidence and analyze the findings taking into account the influence of gender. These aspects allow us to consider new challenges and future lines of research. Thus, extending the fieldwork to other educational contexts, including children and families of ethnic minority groups, would allow us to gather further evidence on the influence of the Internet as a social determinant of health, and its interaction with other axes of inequality.

Over and above the different views and controversies on the concept of health as wellbeing or as the absence of illness, this might also indicate the convergence of perspectives as regards the effects of the Internet on childhood development. This can be summarized into risk prevention or learning to have Internet experiences which create wellbeing.<sup>2,26</sup> These perspectives are described as two opposing views of health: assets *versus* deficits.<sup>27</sup> Our results suggest that other studies should examine whether these two ways of understanding social reality are ways of understanding life which depend fundamentally on age or generation, social and family experiences, or things learnt in school. Similarly, future studies also need to explore the nature of Internet socialization processes and which among them could be considered desirable for positive development during childhood by examining the complexity of online friendships, particularly in the construction of concepts such as company or social support, since this could be revealing new ways of understanding and getting along with each other in face-to-face and virtual situations.

The scientific literature has identified the link between spending considerable amounts of time browsing the Internet and exposure to online bullying, or developing addictive behavior, or the onset of interpersonal problems.<sup>12</sup> This theme cropped up in our study in the statements made by parents, children and teachers about Internet parenting styles. It is interesting to note that what parents interviewed during this study focused on most and were most concerned about was physical health, particularly sight deterioration, back problems or obesity. Future studies should investigate this area more closely, in connection with what comments revealed as the (secondary) role given to considering mental health promotion and psychosocial wellbeing during childhood, as suggested by other research.<sup>28</sup> In addition, our findings showed that some parents agreed with the teachers consulted in advocating a democratic style as a strategy for managing Internet use in the home, based on better dialogue with offspring. However, as regards actually implementing these use strategies, parents' discourse focused on the need to have constant control measures in place. It would be useful for research projects carried out in different contexts to study the implications of different Internet parenting styles in more depth,<sup>29,30</sup> particularly from a gender perspective and its link with health habits, along the lines taken up by the study on Health Behaviour in School-Aged Children.<sup>31</sup>

For the parents and teachers consulted, the idea of wellbeing was associated with the communication possibilities offered by the Internet. They describe the Internet in positive terms for its contribution to facilitating interpersonal relationships between family members and friends, a view widely agreed with by the children, who drew attention to routine use of the Internet for establishing or maintaining bonds of friendship, being in continuous contact with family members, and connection with classmates when doing schoolwork. In this respect, the literature has demonstrated how perception of health and quality of life is strongly mediated by sense of community, contributing to the creation of social capital.<sup>23</sup>

In addition, it would be useful to study the implications of different Internet parenting styles in more depth,<sup>30</sup> particularly from the rationale of their link with health habits, and the sense of cohesion between parents and children.<sup>21</sup>

In line with other studies our findings suggest that the digital gap among the study population is not determined by whether or not they have Internet access, but rather by the different levels of knowledge for using the Web.<sup>32</sup> This is moreover considered a necessary prior condition for individuals to participate effectively in the decisions they take about their own health in a networked world.<sup>8,33</sup> The Internet being considered as a tool for looking after health is revealed in the results of this study, tying in with the debate on the importance of eHealth literacy.<sup>34</sup> In this regard, there is a growing trend in the scientific literature which considers that in order to be critical consumers of healthcare, people need to take a more active role in knowledge management.<sup>35</sup> It is precisely this focus which makes eHealth literacy a key factor for developing self-management and control skills. And it is something our findings reveal among the children consulted, for whom the opportunities for maintaining or improving their health are fundamentally linked to possibilities for dealing with health services via e-Health applications.

In parallel, our findings flag up the advisability of computer skills being developed in tandem by children and their families. This involves implementing collaborative teaching-learning strategies between parents and children, strengthening interpersonal bonds within the family and encouraging parents to pay more attention to how their children are using the Internet, and what for. This argument was identified both among parents and among the pupils and teachers interviewed during our study. This led to primary schools being considered ideal spaces for promoting this kind of collaborative learning so that it is given greater weight in school curricula,<sup>7</sup> and likewise in public health programs to reinforce Internet health assets and literacy from an early age.<sup>26</sup> Previous studies have pointed out that exposure to reliable sources of information is a key area for consideration when designing educational programmes, and that it can contribute not only to discovering the risks which exist on the Internet, but also to discovering its riches, assets for health and the opportunities for learning and entertainment it offers to families.<sup>18,36</sup> However, as described by Gray et al.,<sup>8</sup> greater access to health-related information and resources online does not guarantee the use of quality information. This means that education and public health must get together to strengthen their synergies and work on the direct relationship between level of health literacy and the quality/credibility of information accessed on the Internet.

## Conclusion

This study clearly shows that for the children, parents and teachers consulted, the Internet creates assets for childhood health and wellbeing. These assets are linked to learning, playing and fun, and to opportunities for communication and use of multimedia resources. However, parents and children understand the contribution of the Internet to health and wellbeing differently. Whilst parents emphasize the risks (unsafe environment, relationships and quality of information, social networks, physical problems and addiction), the children emphasize the assets offered by the Internet. This could be due to differences in the way each group perceives health. This flags up the need to improve computer literacy to make best use of the health assets (riches) available on the Internet.

### What is known about the topic?

The Internet use among schoolchildren are usually described through three prisms: referring to children as receivers of inappropriate content via the Internet, inappropriate contact with adults, and conduct as the victims or perpetrators of activities by means of peer-to-peer group exchanges.

### What does this study add to the literature?

Results reveals that the Internet has the potential to create assets for childhood health and wellbeing; however parents and kids understand this contribution in a different way, connected to the way each group perceives health. Extending this issue to other educational contexts, including children from ethnic minority groups, would enable us to gather further evidence on the influence of the Internet as a determinant of social health, and of its interaction with other cross-cutting aspects of inequality.

### Editor in charge

Carlos Álvarez-Dardet.

### Transparency declaration

The corresponding author on behalf of the other authors guarantee the accuracy, transparency and honesty of the data and information contained in the study, that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

### Authorship contributions

M. Hernán-García designed the study. B. Botello-Díaz performed the field work with the support of the team research. J. Marcos-Marcos and M. Hernán-García analyzed the data and wrote the first draft of the paper with input from all authors. M. Hernán-García, P. Simón-Lorda, E. Gil García reviewed the article, and M. Hernán-García, J. Marcos-Marcos, B. Botello-Díaz, P. Simón-Lorda, E. Gil García approved the final version.

### Conflicts of interest

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