



Scales to Assess the Use of ICT and Child-to-parent Violence in Adolescents

Escalas para valorar el uso de las TIC y la violencia filio-parental en adolescentes

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ABSTRACT

The lack of adequate educommunicative training often results in the problematic use of ICT by adolescents, leading to various issues such as anxiety, depression, isolation, and the deterioration of intra- and interpersonal relationships, language impoverishment, and even aggression. In relation to the latter, the significant increase in child-to-parent violence in recent years is noteworthy, emerging as a concerning problem in multiple countries. Therefore, this study conducts a systematic review based on the PRISMA method to identify the most suitable instruments for assessing potential inappropriate use of ICT in adolescents and the child-to-parent violence stemming from it. The databases employed include Web of Science, Scopus, ProQuest, Worldcat, PubMed, PubPsych, and Dialnet, yielding a total of 224 instruments. Of these, fifteen scales were analyzed based on their characteristics and psychometric properties. After applying exclusion criteria, the ERA-RSI scale, the UPNT Questionnaire, and the CPV-Q-P were chosen. The complementarity of these three instruments allows for an exploration of the issue's current state and provides a holistic perspective that facilitates the design of appropriate educommunicative training benefiting all stakeholders and establishes measures to prevent both the inappropriate use of ICT and manifestations of child-to-parent violence arising from it.

RESUMEN

La ausencia de una formación educomunicativa adecuada deriva a menudo en un uso problemático de las TIC por parte de los adolescentes, ocasionando diversos problemas como la ansiedad, la depresión, el aislamiento, el empobrecimiento de las relaciones intra e interpersonales, el empobrecimiento del lenguaje, e incluso la agresividad. Con relación a esta última, cabe destacar el notable incremento que ha sufrido la violencia filio-parental en los últimos años, convirtiéndose en un problema preocupante en múltiples países. Por ello, este trabajo realiza una revisión sistemática basada en el método PRISMA para identificar los instrumentos más apropiados para valorar un posible uso inadecuado de las TIC en adolescentes y la violencia filio-parental derivada de este. Las bases de datos empleadas fueron Web of Science, Scopus, ProQuest, Worldcat, PubMed, PubPsych y Dialnet, obteniéndose un total de 224 instrumentos. De ellos, se analizaron 15 escalas en función de sus características y propiedades psicométricas. Una vez aplicados los criterios de exclusión, se seleccionaron la escala ERA-RSI, el Cuestionario UPNT y el CPV-Q-P. La complementariedad de estos tres instrumentos permite explorar el estado de la problemática y obtener una perspectiva holística que facilite el diseño de una formación educomunicativa apropiada que beneficie a todos los agentes involucrados y establezca las medidas oportunas para prevenir tanto el uso inadecuado de las TIC como las manifestaciones de violencia filio-parental derivadas de este.

KEYWORDS | PALABRAS CLAVE

Violence, ICT, Adolescence, ICT Abuse, Educommunication, Systematic Review.

Violencia, TIC, Adolescencia, Abuso de las TIC, Educomunicación, Revisión Sistemática.

1. Introduction

Information and Communication Technologies (ICT) and educommunication have experienced exponential growth in recent decades, radically transforming the way people interact, work and access information. These digital tools have brought numerous benefits, from improving process efficiency to creating new opportunities in areas such as education, health and entertainment. However, the inappropriate use of ICTs has become a worrying and complex phenomenon that poses significant challenges for contemporary society.

Widespread access to the Internet, the popularity of mobile devices and the influence of social networks and communication platforms have led to an increasing dependence on ICTs in various aspects of daily life. In fact, it can be considered that we are facing a new form of citizenship: media citizenship, since the communicative and media dimension both traditional and interactive undoubtedly defines our current society (Gozálvez & Contreras, 2014), which includes the unavoidable challenge the educommunicative literacy of children and young people, especially in terms of critical autonomy when interacting with such media.

When it comes to understanding the problem, during the last decade numerous studies have focused on identifying psychosocial variables related to risky behaviors on the Internet, showing that they can be predictors of excessive use of ICTs in adolescence (Helsper & Smahel, 2020; Martín-Perpiñá, Poch, & Cerrato, 2019), which prevents them from developing their lives normally (Malo-Cerrato, Martín-Perpiñá, & Viñas-Poch, 2018; Vondrackova & Šmahel, 2019). In this regard, statistics show that more than 24% of young people use their digital devices daily to interact on social networks, and more than half of these young people connect several times a day (Areepattamannil & Khine, 2017). However, problematic Internet use is defined when its compulsive use is accompanied by cognitive concerns, deterioration in interpersonal and intrapersonal relationships (Caplan, 2010) or increased symptoms of depression (Lozano-Blasco & Cortés-Pascual, 2020).

Another risk associated with ICTs is their high addictive potential, since they offer teenagers a series of rewards such as immediacy, the possibility of adopting new identities, anonymity, a sense of gratification, ease of access, control, challenges, etc. (Babín Vich, 2009). In addition, some ICTs expose different types of violence, blurring the seriousness of the facts and producing habituation to them. In fact, multiple studies show that greater exposure to the media implies an increase in aggressive behavior, increasing the risk of violent behavior in children and teenagers, even more so in the case of video games where the player assumes the role of virtual aggressor (Jiménez Arroyo, 2014).

In this regard, it should be noted that child-to-parent violence has undergone a notable increase in recent years, becoming a worrying problem in multiple countries (Contreras, León, & Cano-Lozano, 2020b). In the case of Spain, the latest report of the Attorney General's Office (2023) attests to this, showing that in 2018 a total of 4,871 cases were reported to the Juvenile Court, which rose to 5,055 in 2019. In 2022, 4,332 cases were filed, a decrease of -8.60% compared to 2021. However, despite the fact that the figures seem to be decreasing, increases are observed in areas such as Malaga, Ourense, Navarra, Tenerife, Burgos, Alicante and Huesca. And, for example, the study conducted by the Community of Madrid on the problematic use of information, communication and gaming technologies among young people (Méndez Gago et al., 2018) indicates that parents with underage children exercise greater control and perceive to a greater extent symptoms such as abandonment of traditional activities, isolation, deterioration of language, aggressiveness when having to interrupt the activity, nervousness when using new technologies or disputes with other family members, as a result of such inappropriate use.

For its part, the Attorney General's Office (2023) has repeatedly pointed out in its reports that "this social problem has its origin in the deficits of values that the educational system has not been able to alleviate; and when the seriousness of the case leads to legal action, it is usually too late to solve it" (p. 782). From this we can deduce the enormous importance of offering from the academic and family environment an adequate, rigorous and complete educational-communicative training that contributes to minimize this type of situations.

Thus, educational-communicative training is crucial to avoid the abusive use of new technologies by adolescents, which, as we have seen, can lead to a high level of dependence, with their general symptoms being associated with a tendency to isolation and depression, lack of communication with friends and family,

poor school or work performance and a propensity to aggressiveness. In fact, episodes of child-to-parent violence frequently arise as a result of disputes on this issue that are added to other internal problems in the young person such as low self-esteem, loneliness, low social stimulation, and introversion (Garrido & Galvis, 2016), often derived, precisely, from this inappropriate use of ICTs. This is highlighted by González Álvarez (2012) when he points out a profile of minors, without any reference group, who attack their parents and who also spend their leisure time alone, surfing the Internet, playing video games or chatting.

The absence of adequate guidelines for the use of ICTs in the family environment has been identified as a significant risk factor for the abuse of these technologies among adolescents (Malo-Cerrato et al., 2018; Martín-Perpiñá et al., 2019). So much so that the pattern of technological consumption in the family environment directly influences the behavior and development of children at increasingly younger ages (Coyne et al., 2020). In addition, the family represents the first interrelational environment in which emotional bonds are established among its members, with this affective bond playing a fundamental role in relation to the addictive or problematic use of technologies among teenagers. For example, Kim and Koh (2018) observed how the avoidant attachment style, mediated through self-esteem and anxiety, could explain the addictive use of smartphones in young people.

However, the study of the influence of the family environment on young people's Internet behaviors has focused mainly on the norms of control and supervision of ICT use, demonstrating that the application of strict family limits to young people's online activities and the constant demand for information about their actions do not prove to be effective strategies to reduce risky behaviors in the childhood and youth stage (Baldry, Sorrentino, & Farrington, 2019).

In view of the above, this paper aims to carry out a systematic review to select the most appropriate measurement instruments to analyze the use of ICTs in adolescents as a possible risk factor in child-to-parent violence. Specifically, we start from the hypothesis that there is currently no instrument that allows us to explore this aspect in a unique and holistic way. To this end, the characteristics of the instruments found, the representativeness of their sample size, their psychometric properties and their adaptation to the Spanish population will be analyzed.

2. Method

In order to identify and comprehensively analyze the most relevant studies on this topic, the systematic literature review (SLR) method was used, following the guidelines established by Conn et al. (2003). These guidelines emphasize the importance of developing a documentary corpus as an integral part of the review process.

In addition, in order to promote the replicability of our study and ensure the reliability of its results, the systematic review conducted followed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) Statement (Moher et al., 2009; Page et al., 2021).

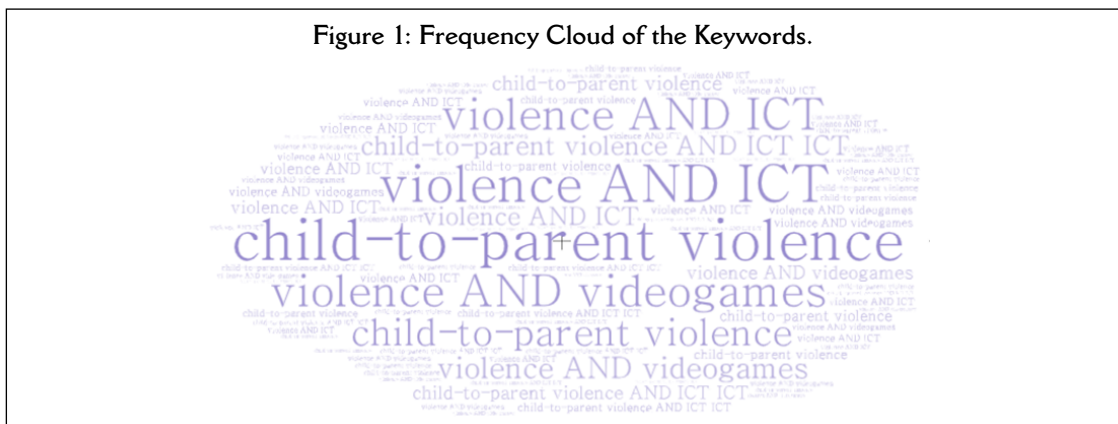
The search carried out between June 2022 and March 2023 used the most prestigious databases in the area of study: Web of Science, Dialnet, Scopus, Worldcat, PubMed, PubPsych and ProQuest. The following terms and Boolean operators were used as keywords to ensure their thematic connection: "child-to-parent violence", "violence AND ICT", "violence AND videogames", "child-to-parent violence AND ICT", "child-to-parent violence AND videogames". These keywords were limited to the English language to ensure a more complete access to relevant studies, which contributes to a more comprehensive coverage of the reviewed literature, as well as to its internationalization. No restriction by year of publication was applied and the search was limited to scientific articles to ensure quality and impact.

Table 1 shows the number of results obtained in the different databases for each of the queries performed and their percentage with respect to the total number of documents found.

As can be seen in Table 1, the initial *n* was 224 documents, of which 36.2% were found in Web of Science, 25% in ProQuest, 26% in Dialnet, 4.5% in Worldcat, 3.1% in PubSych and Scopus respectively, and 2.2% in PubMed. These records were imported into a database in table format (<https://doi.org/10.6084/m9.figshare.24718059>) to facilitate the collection and evaluation of relevant information regarding the selected sample. This database was deposited in Figshare to comply with the FAIR (findable, accessible, interoperable and reusable) principles that should govern this type of documents in the interest of opening science to society.

Database	Keywords	Results	Total	%
Web of Science	child-to-parent violence	58	81	36.2
	violence AND ICT	15		
	violence AND videogames	8		
Dialnet	child-to-parent violence	24	58	25.9
	child-to-parent violence AND ICT	4		
	violence AND ICT	19		
ProQuest	violence AND videogames	11	56	28
	child-to-parent violence	53		
	child-to-parent violence AND ICT	3		
PubMed	violence AND ICT	1	5	2.2
	violence AND videogames	4		
WorldCcat	violence AND ICT	6	10	4.5
	violence AND videogames	4		
PubPsych	violence AND videogames	2	7	3.1
	violence AND ICT	5		
Scopus	child-to-parent violence	4	7	3.1
	violence AND videogames	3		
TOTAL		224		100

Subsequently, in order to determine whether the appropriate keywords were being used in the search, a thematic analysis of the results was carried out, analyzing the keywords used by the researchers in these documents. This analysis revealed that 62% of the instruments (n = 139) were categorized under the term “child-to-parent violence”, followed in order of relevance by “violence AND ICT”, “violence AND videogames” and “child-to-parent violence AND ICT”, as can be seen in Figure 1, so the keywords selected for this research are considered appropriate.

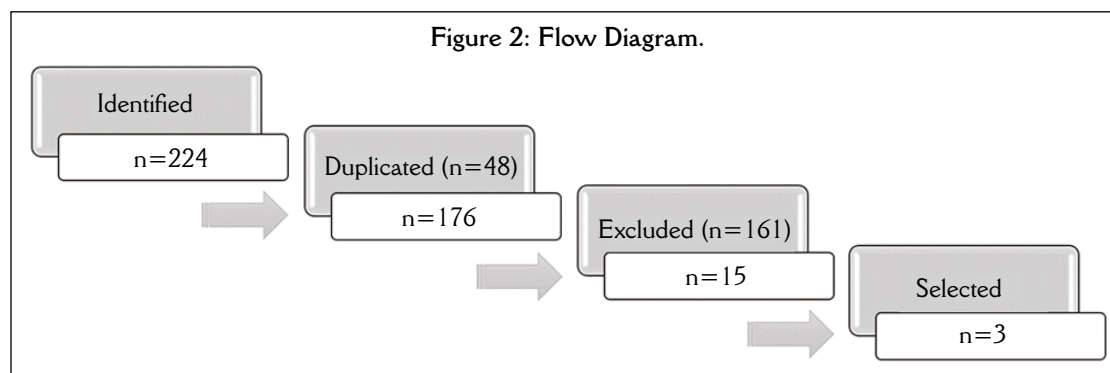


Next, in order to delimit the results of the research, the inclusion and exclusion criteria were defined as shown in Table 2.

NO.	Inclusion Criteria	Exclusion Criteria
1	Scientific articles	Other types of documents
2	Languages: Spanish and English	Languages other than English and Spanish
3	Open access to full text	Restricted and/or limited access
4	Sample age range 14 to 18 years old	Sample age range other than 14 -18 years old
5	Representative sample size	Non-representative sample size
6	Adequate psychometric properties	Inadequate psychometric properties
7	ICT usage scales	Scales over other uses
8	Instruments on child-to-parent violence	Tools on other types of violence

After filtering the data matrix according to the established inclusion and exclusion criteria, 48 instruments that were duplicated in different databases were eliminated, leaving a total of 176 records. Subsequently, these instruments were subjected to a rigorous analysis based on their characteristics and psychometric properties, and those that were sufficiently related to the research objective were selected, yielding a total of 15 instruments. Of these, the 3 that best responded to the research objective were finally selected, complementing each other and offering a holistic perspective on the study problem.

Figure 2 shows the flow chart of the instrument search and selection process in accordance with the PRISMA guidelines, in order to ensure transparency and clarity.



3. Results

In the data analysis process, the articles that used the selected instruments were examined in order to evaluate their contribution to the solution of the research questions and to carry out their comparison.

The selected research was published between 2009 and 2022, where 81.25% (13) of the scales were published in Spain and 18.75% (3) in the USA, Peru and Switzerland. The analysis of the annual distribution of the selected articles shows that the year 2009 is the time when publications and instruments with the aim of measuring child-to-parent violence begin to emerge. In the years 2009, 2018 and 2019 respectively, a high number of instruments were designed, with a notable increase in 2018, which represents an important milestone in the evolution and expansion of these tools. The rest of the years several scales appear to measure the frequency of ICT use, with the exception of 2016, when none were published.

In the analysis of the instruments, it should be noted that most of the assessment tools are of Spanish origin with the exception of three scales published in the USA, Peru and Switzerland. All the other instruments included in the review were developed and validated in Spanish contexts, which provides a solid basis for understanding and measuring specific variables in this population.

The second table included in Figshare (<https://doi.org/10.6084/m9.figshare.24720873>) lists the 15 scales identified during the systematic review, showing firstly those most related to the use of technology and secondly those focused on violence. It also includes the criteria for which 12 of the instruments analyzed were finally excluded.

The Internet-Related Experiences Questionnaire (CERI) and the Mobile-Related Experiences Questionnaire (CERM) are the most frequently used instruments for the assessment of these issues in Spanish adolescents. Other instruments were discarded due to evident limitations in terms of construct validity, as they did not accurately reflect the essential dimensions of the variables under study. Likewise, scales that, despite having been used in previous research, lacked adequate validation studies for the population under study were excluded.

In addition, instruments 1, 2, 3, 4, 5 and 7 were discarded because they lacked adequate psychometric properties, which compromised their reliability and validity in the measurement of the desired variables. Scale 9 was excluded because it was not adapted to the inclusion languages and had an age range different from the reference sample. Finally, questionnaire 10 was discarded

because it did not have a representative sample size and instruments 8, 12, 13 and 14 were excluded due to their limitation in the evaluation of specific aspects, since they focused exclusively on the measurement of violence in general or Internet use exclusively, without comprehensively addressing the psychological constructs relevant to the research objective. This limitation is considered important because it reduces the ability of the instruments to provide a complete and accurate picture of the phenomena assessed in the present study.

The application of these criteria resulted in the final selection of the following evaluation instruments:

1. The Adolescent Risk of Addiction to Social Networks and the Internet Scale (ERA-RSI). It consists of 29 items that assess the risk of Internet addiction, integrating four dimensions: symptoms-addiction, social-use, "friki" (geek) traits and nomophobia.
2. The Questionnaire of Problematic Use of New Technologies (UPNT) to assess the use of ICTs by adolescents. It consists of 41 items on frequency and problems in the use of different ICTs, Internet, video games, cell phones and television.
3. The CPV-Q-P questionnaire to collect family perceptions of the precursors of child-to-parent violence, among which is such use. It comprises a total of 14 items referring to different acts of psychological (four items), physical (three items) and financial violence (three items), as well as behaviors that demonstrate control and dominance over the parents (four items).

Therefore, it is considered that these three instruments complement each other in terms of the screening they perform on the problem under study, allowing a holistic and reliable view of it to be obtained. Table 3 shows the samples, age range and psychometric properties of these instruments:

Instrument	n	Age range	Internal Consistency	Convergent Validity	Construct Validity	Clinical Validity
ERA-RSI	2417	12 - 17 years old 54% (12-14) 46% (15-17)	$\alpha = .90$	$r > .76$	KMO = .90 $\chi^2 = 6138.89$	$p < .001$
UPNT	2747	9 - 33 years $\bar{X} = 14.04$ $\sigma = 3.5$	$\alpha > .70$	$r > .66$	KMO = .885 $\chi^2 = 18401.54$	$p < .001$
CPV-Q-P	1012	55.1% (mothers) $\bar{X} = 46.19$ $\sigma = 6.27$ 44.9% (parents) $\bar{X} = 48.34$ $\sigma = 6.27$	$\alpha = .76$	$r > .90$	$\chi^2 = 561.95$	$p < .001$

As shown in Table 3, the reliability and internal consistency of the three scales was calculated using Cronbach's alpha coefficient, showing satisfactory results in all cases. Convergent validity was analyzed using Pearson's correlation coefficient, showing a high and highly significant index in all three instruments.

The construct validity of the ERA-RSI and the UPNT was assessed by factor analysis, calculating the Kaiser-Meyer-Olkin (KMO) measures of sample adequacy and Bartlett's test of sphericity, both of which showed adequate indices. The latter coefficient was also assessed in the CPV-Q-P questionnaire, yielding an optimal result.

Finally, the analysis of clinical validity and linear dependence also showed a good discriminative capacity of the items in the three instruments, with significant intergroup differences.

4. Discussion and Conclusions

Widespread access to the Internet, the prevalence of mobile devices and the influence exerted by social networks and communication platforms have generated a growing dependence on ICTs in various aspects of daily life. We are witnessing the emergence of media citizenship. This is because the communicative and media dimension, both in its traditional and interactive form, undeniably defines our contemporary society (Gozálvez & Contreras, 2014). This phenomenon poses an unavoidable

challenge: educommunicative literacy in the infant-juvenile population, especially in terms of developing critical autonomy when interacting with these media.

This context makes it essential to develop effective strategies aimed at preventing and detecting the inappropriate use of ICTs in teenagers, since digital interaction has become essential in daily life but also poses great challenges in terms of problematic behaviors, including child-parental violence. As a result, the need arises to develop an assessment tool that covers various risk behaviors, such as technology addiction or inappropriate use, along with all the elements that characterize this type of violence.

Therefore, the main objective of this systematic review was to analyze the instruments developed both for the assessment of ICT use in adolescents and for the evaluation of possible child-parent violence derived from inappropriate use of ICTs. The total number of references was 15 instruments from which the ERA-RSI, the UPNT and the CPV-Q-P were finally selected on the basis of their study samples, their psychometric properties and the adequacy and complementarity of the items to respond to the objective of this research.

The literature review shows that the publication of instruments to measure child-to-parent violence had its origin from the year 2009, which coincides with what Pereira (2018) points out, who states that between 2005 and 2006 a great concern arose in Spanish society about child-to-parent violence, generating a media and social alarm as a result of the increase in reports of parents assaulted by their children and the demand for socio-psycho-therapeutic care in the face of such a problem.

The prevalence of social network and internet use in adolescents, the impact on mental health and the need for early detection highlight the relevance of using scales such as the ERA-RSI to understand and assess the associated risk of addiction. As advocated by Echeburúa and de Corral (2010), it is necessary to implement preventive strategies both in the family and educational settings considering the risk factors and characteristics of teenagers. Early detection of addictive behaviors is essential to intervene and provide support to at risk teenagers in order to contribute to the design of more effective preventive strategies.

Research on the influence of the family environment on the behavior of adolescents with the use of ICTs has mainly focused on the study of the rules of control and supervision of these technologies. These studies highlight that the application of parental control through the imposition of strict limits on the activities of minors, as well as the constant request for information about their actions, turns out to be an ineffective strategy to mitigate risky behaviors during adolescence (Baldry et al., 2019). This fact highlights the need to offer adequate educommunicative training to teenagers to help prevent this problem, as pointed out in this study and affirmed by other relevant research (Gozálvez & Contreras, 2014; Gutiérrez & Tyner, 2012).

The incidence of child-to-parent violence has experienced a significant increase in the last decade, becoming a prominent concern in several countries (Beckmann et al., 2021; Ibabe, 2016; Margolin & Baucom, 2014). This phenomenon has prompted an increase in research to understand its dimensions and address it effectively. Despite this increased attention, most studies focus on adolescent samples, with a scarce representation of parental samples. Moreover, the diversity of existing assessment instruments does not fully capture the characteristic elements of this type of violence. Therefore, Contreras, León and Cano-Lozano (2020a) propose a parent version with the CPV-Q-P.

On the other hand, when addressing the issue of consumption and addictions in adolescence, it is essential to consider the development of dependencies to certain behaviors, such as the recognized addiction to the use of video games, catalogued by the American Psychiatric Association in its diagnostic classification. This study trend is evident in most of the instruments in this review, such as the Adolescent Risk of Addiction to Social Networks and the Internet Scale (ERA-RSI), the Video Game Addiction Scale for Adolescents (GASA) or the Screening Questionnaire for New Addictions (DENA). The Problematic Internet Use in Adolescents Scale (EUPI-a) and the Questionnaire on Problematic Use of New Technologies (UPNT) also have an impact on the assessment of inappropriate or problematic use.

Thus, video game addiction becomes a relevant aspect for the investigation of child-to-parent violence for several reasons: it manifests itself in the same environment in which such violence occurs, it constitutes a highly rewarding leisure activity at these ages, it demands a considerable amount of

time, it tends to be an activity not shared with parental figures, which can generate distancing, and the regulation of gaming behavior frequently triggers family discussions at this evolutionary stage (Lloret Irlés, Cabrera Perona, & Sanz Baños, 2013).

For all these reasons, ICTs pose serious challenges in our society to which it is urgent to respond. Among the actions to be carried out, as already mentioned and as concluded in the study, it is particularly important to develop critical media literacy and digital competence in young people, avoiding reductionism and technological bias (Gutiérrez & Tyner, 2012). Moreover, such educommunicative training must be consistent with the situation of each teenager, so that it serves to address each particular situation, offering in a personalized way valuable resources and strategies that encourage a responsible use of ICTs, promoting awareness of the associated risks and favoring the acquisition of useful skills in this area, such as critical thinking to evaluate online information, digital empathy, respect in virtual interactions and deep understanding of content, thus strengthening their ability to understand, analyze and participate actively and responsibly in an increasingly interconnected and mediatized digital society.

Thus, the establishment of early detection mechanisms to identify indicators and patterns of behavior associated with the inappropriate use of ICTs would contribute to the prevention of the escalation of child-to-parent violence that is taking place in many countries, including Spain. In order to carry out this diagnosis, it is essential to have measuring instruments to identify and adequately assess the possible inappropriate uses and behaviors of each adolescent, providing relevant information to design prevention and intervention strategies that promote a safer and more responsible use of ICTs in the child and teenager population.

In this sense, the systematic review conducted in the present study shows that the instruments designed to measure the use of ICTs face a constant and significant challenge due to the rapid evolution of the Internet and related technologies. As a result, the starting hypothesis formulated is corroborated, as there is currently no instrument that allows us to explore, in a unique and holistic way, the use of ICTs in teenagers as a possible risk factor in child-to-parent violence. Moreover, many of the instruments that have been reviewed and discarded in this review fail to accurately and completely analyze the complexity of these new digital uses and behaviors, having become obsolete in a relatively short time. Therefore, at present, in the absence of an instrument capable of offering a holistic view of this problem, it is necessary to combine the three instruments selected in this research to achieve a comprehensive analysis of the situation. However, it is likely that these instruments will also end up, over time, subject to the obsolescence inherent to media ecology, making it pertinent to carry out a new review study to analyze whether scales have been developed or adapted to address the particularities that may exist in the new context. In summary, addressing the inappropriate use of ICTs in adolescents should involve a comprehensive approach that combines prevention through educommunication, early detection through monitoring and collaboration among various social actors. Such an approach is not only intended to mitigate the risks associated with problematic ICT use, but also to prevent the manifestation of child-to-parent violence as a consequence of this malpractice. In this sense, it is considered that the results of the systematic review of the existing scientific literature allow us to modify the current state of the art by selecting those instruments that are most suitable for the assessment of ICT use. In fact, the combination of the three selected instruments can offer an exhaustive screening that allows us to obtain a global vision of the situation of each teenager, contributing to the design of intervention programs adjusted to the reality and that contemplate an appropriate educational-communicative training that benefits all the agents involved and establishes the appropriate measures to prevent this type of ICT use and violent manifestations.

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