

THE ASSESSMENT OF CYBERBULLYING: THE PRESENT SITUATION AND FUTURE CHALLENGE

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En la última década se ha asistido a un notable incremento del interés de la comunidad educativa y científica por el cyberbullying, una nueva forma de maltrato e intimidación entre iguales. A pesar de la amplia proliferación de estudios y de instrumentos de evaluación sobre el fenómeno, siguen existiendo importantes lagunas conceptuales y metodológicas. Este trabajo ofrece una revisión general y actualizada de los resultados de la investigación sobre la definición del constructo, su prevalencia y su impacto en las personas implicadas. Finalmente, se centra de manera específica en la evaluación del constructo y proporciona una breve revisión de las características generales y psicométricas de aquellos instrumentos utilizados en algunos de los estudios nacionales e internacionales más relevantes realizados sobre el tema. El trabajo hace especial hincapié en los retos presentes y futuros y finaliza con algunas recomendaciones generales que pretenden guiar en la selección y/o construcción adecuada de instrumentos de evaluación en este campo de estudio.

Palabras clave: Cyberbullying, Bullying tradicional, Definición, Evaluación, Instrumento.

In the last decade there has been a significant increase in the interest of the educational and scientific community on cyberbullying, a new form of peer abuse and intimidation. Despite the widespread proliferation of studies and assessment tools on the phenomenon, there are still major conceptual and methodological gaps. This paper offers a comprehensive and updated review of the results of research on the definition of the construct, its prevalence and its impact on the people involved. Finally, it focuses specifically on the assessment of the construct and provides a brief review of the general and psychometric characteristics of the instruments used in some of the most relevant national and international studies conducted on the subject. This work places special emphasis on the present and future challenges and concludes with a number of general recommendations intended to guide the selection and/or construction of assessment instruments in this field of study.

Key words: Cyberbullying, Traditional bullying, Definition, Measurement, Instrument.

Since the first study on cyberbullying in 2000 by Finkelhor, Mitchell, and Wolak in the United States, there have been numerous investigations conducted on the phenomenon both outside and inside our country (e.g., Álvarez-García et al., 2011; Beran & Li, 2007; Buelga, Calva & Musitu, 2010; Calvete, Orue, Estévez, Villardón & Padilla, 2010; Hinduja & Patchin, 2008; Ortega, Calmaestra & Mora-Merchán, 2008; Williams & Guerra, 2007; Ybarra & Mitchell, 2008). Proof of this is in the many special issues that various journals, both national and international, have devoted to the subject (e.g., *Journal of Adolescent Health*, *Journal of Community and Applied Psychology*, *Psicothema*).

However, despite this widespread proliferation of studies focused mainly on understanding the prevalence of cyberbullying and its correlates with other psychosocial variables, there is still no universally agreed definition (Álvarez-García et al., 2011; Stewart, Drescher, Maack, Ebesutani & Young, 2014; Ybarra, Boyd, Korchmaros & Oppenheim, 2012). This has meant that different methodologies have been used in the evaluation of the construct, which has hampered both the comparison of the results obtained by different studies and the advancement of research in the area (Hanewald, 2013; Ybarra et al., 2012).

This paper aims to present a synthesis of the state of the question regarding the assessment of cyberbullying. To this end, firstly the construct is defined, followed by a presentation of the prevalence rates and the impact on the development of the people involved. In the second

stage, focusing more specifically on assessment, this study addresses some of the challenges faced when assessing this construct today and presents some of the most important instruments nationally and internationally. Finally, a number of guidelines and recommendations are offered, which should guide decisions when choosing an existing tool to assess cyberbullying or, alternatively, designing one's own tool, and also when embarking on future research in this field of study.

CONCEPTUAL DEFINITION, PREVALENCE AND IMPACT ON DEVELOPMENT

Cyberbullying has been defined as the kind of harassment committed by an individual or group who, using new information and communications technology (ICT) (mobile phones, email, social networks, blogs, websites, etc.), deliberately and repeatedly attacks someone who cannot easily defend him or herself (Patchin & Hinduja, 2006; Smith et al., 2008). This new form of peer abuse has received other denominations, such as *online bullying* (Nansel et al., 2001), *electronic bullying* (Kowalski & Limber, 2007; Raskauskas & Stoltz, 2007), *online harassment* (Finkelhor et al., 2000), *internet bullying* (Williams & Guerra, 2007), and *cyber aggression* (Pornari & Wood, 2010). This diversity of names illustrates the existing terminological and conceptual confusion in this area of study, which sometimes leads to different terms being used for the same concept or the same term being used with different meanings (Tokunaga, 2010; Ybarra et al., 2012). This paper will use the above definition proposed by Smith et al. (2008) and the term *cyberbullying*, which is the most widely used in the scientific literature.

According to this definition, cyberbullying shares the three characteristics of traditional bullying as it deals with aggressive behaviours that are intentional, repeated and based on an asymmetrical

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relationship of power and control over/submission to another person (Kowalski & Limber, 2007; Olweus, 1993). However, some authors have questioned the feasibility of evaluating these three aspects in cyberspace (Menesini & Nocentini, 2009). For example, while it is easy to calibrate the imbalance of power in traditional bullying, either due to the greater physical or psychological strength of the attacker or due to a purely numerical criterion (several aggressors compared with one victim), it is more complicated in cyberspace. Some authors suggest that the use of this imbalance of power criterion could be justified by the greater reach of the attacks that occur using the new technologies, as they transcend to a larger virtual audience compared with traditional bullying, which reaches a much smaller group (Garaigordobil, 2011; Williamson, Lucas-Molina & Guerra, 2013). In other words, the imbalance of power would be determined by the public nature of cyberbullying compared with the private nature of traditional bullying (Thomas et al., 2015). Moreover, the need has also been questioned for the cyberbullying to be of a repetitive nature to be considered as such (Garaigordobil & Martínez-Valderrey, 2015). A single act, such as the publication of a compromising photo (whether real or the result of a montage) in a social network can result in immediate dissemination and thus meet the criterion of being repetitive and frequent (Menesini & Nocentini, 2009).

Despite these similarities, which have led some authors to argue that cyberbullying is a traditional form of bullying (such as physical or relational bullying; Li, 2007), cyberbullying differs from traditional bullying in a number of aspects (Álvarez-García et al., 2011; Buelga et al., 2010; Garaigordobil, 2011; Stewart et al., 2014). The first has already been mentioned before: the greater scope of cyberbullying. With a single click, a student can spread a false rumour to hundreds and thousands of people on the internet, whereas in traditional bullying, because it occurs in person, the scope of the rumour is much more restricted. The second difference is the victim's inability to escape the situation of intimidation. Traditional bullying is essentially limited to the time that the student victim spends in the school environment and its surroundings; in cyberbullying, however, the harassment can continue 24 hours a day, 7 days a week, whether or not the student is at school, as he or she can still receive messages via mobile or computer. The third difference is that, unlike traditional bullying, cyberbullying is not a "face to face" experience; the aggressor does not have to expose him or herself physically to the victim. Besides this, pseudonyms can be used on the internet. All of this gives a certain invisibility and allows the cyberbully to act anonymously. Finally, the contents of electronic bullying can be permanent or difficult to remove, so victims may relive the situation of victimisation over and over again, placing them in a more vulnerable situation (Buelga et al., 2010).

In line with this, several authors propose that the public nature (reaching a large audience) and the anonymous nature (the fact that the aggressor is not known) should be included in the definition of cyberbullying, relegating to the background both the repetitive nature and the imbalance of power (Nocentini et al., 2010; Thomas et al., 2015). However, it is worth noting that anonymity does not occur in all situations of cyberbullying (Tokunaga, 2010). Regardless of the place the criteria occupy in the definition, what the studies focused on how adolescents perceive cyberbullying scenarios do disclose (Menesini et al., 2012) is the need to include specific criteria on cyberbullying that go beyond the intentionality, repetition and imbalance of power.

This new technological form of bullying includes a wide range of

behaviours that are usually classified into the following categories (Garaigordobil, 2014; Kowalski, Limber & Agatson, 2010; Willard, 2007): social exclusion (not letting the victim participate in a specific social network), denigration (spreading rumours and false information about the victim), harassment (sending and disseminating offensive messages), impersonation (sending malicious messages in forums or chat rooms posing as the victim), violation of privacy (disseminating secrets or images of the victim); persecution (sending threatening messages) and "happy slapping" (physically assaulting the victim in order to record and disseminate the aggression within their environment). Moreover, these forms can vary, and indeed they do, with the rapid development of ICT, as well as between different cultures (Menesini, Nocentini & Calussi, 2011).

The inconsistency in the conceptualisation and consequently the operationalisation of the construct have led to the use of different assessment methodologies and to the obtaining of different degrees of prevalence. In this regard, it should be noted that studies conducted outside our country have found prevalence rates ranging from 9% (Ybarra, Mitchell, Wolak & Finkelhor, 2006) to 72% (Juvonen & Gross, 2008). In Spain, the studies that have been carried out have also produced varied results (Álvarez-García et al., 2011). For example, the study conducted nationally by the Observatorio Estatal de la Convivencia Escolar [National Observatory of School Life] on 23,100 secondary school students, between 2.5% and 7% of the students admitted to having been a victim and 2.5-3.5% admitted to having been an aggressor of any of the four types of cyberbullying in the last two months (Díaz-Aguado, Martínez-Arias & Martín, 2013). These results are far from those obtained by Buelga et al. (2010), in a sample of 2,101 students aged between 11 and 17 years from Valencia, according to which 24.6% had been bullied by mobile and 29% by internet in the last year. These percentages are consistent with the review by Tokunaga (2010), according to which between 20% and 40% of teens experience cyberbullying. Moreover, several studies have shown the rapid increase in this new form of bullying among adolescents. Wolak, Mitchell and Finkelhor (2006) found that the prevalence rates had doubled five years after their first study on cyberbullying (Finkelhor et al., 2000). Also, it is worth noting that these prevalence rates are higher than those found in traditional bullying (Nansel et al., 2001).

As was the case with traditional bullying, the two variables most analysed in detecting the students involved in this technological form of bullying have been age or educational level, and gender. With regard to the first variable, the different studies within and outside Spain on the prevalence of cyberbullying seem to point to the same pattern detected in face-to-face bullying: a rise in pre-adolescence or during the first years of secondary education, with a subsequent decline in the final years of this educational stage (Buelga et al., 2010; Williams & Guerra, 2007). However some studies have not found differences regarding the age of the pupils (Smith et al., 2006). Regarding gender differences, the literature agrees that girls are bullied more than boys (Burgess-Proctor et al., 2009; Calvete et al., 2010; Félix-Mateo et al., 2010; Kowalski & Limber, 2007; Li, 2007; Ortega, Elípe, Mora-Merchán, Calmaestra & Vega, 2009; Smith et al., 2006; Stewart et al., 2014). For example, a recent study in the Basque Country on a sample of 3,026 adolescents aged between 12 and 18, Garaigordobil and Aliri (2013) found a significantly higher percentage of female victims (17.6% girls, 12.5% boys). However, other investigations have not found these differences (Álvarez-García et al., 2011; Buelga et al., 2010; Hinduja & Patchin,

2008; Juvonen & Gross, 2008; Williams & Guerra, 2007). Interestingly, these results are different from those found in traditional bullying, where there was a higher percentage of boys both in the role of victim and that of aggressor (Tokunaga, 2010).

Cyberbullying has harmful consequences for everyone involved, regardless of the role played, as they are at greater risk for psychosocial maladjustment and psychopathological disorders in adolescence and adulthood (Gairagordobil, 2011; Gradinger, Strohmeier & Spiel, 2009). In general, the research shows that cyberbullying has similar effects to traditional bullying both at the time that it happens, and in the medium and long term (Kowalski et al., 2010). However, some authors suggest that its effects can be more devastating, especially among student victims. Smith et al. (2006) found that victims perceived electronic forms of bullying as more serious than traditional forms, especially when the harassment was of a more public and menacing nature.

As a result of cyberbullying, victims often have feelings of anxiety, depression, helplessness, sadness, low self-esteem and self-confidence as well as a poor psychosocial adjustment (Kowalski et al, 2010; Ybarra & Mitchell, 2004). They also display poor academic performance, poor concentration and truancy (Beran & Li, 2007; Raskauskas & Stolz, 2007) and show higher levels of stress, fear and suicidal ideation (Hinduja & Patchin, 2010). Therefore, as with traditional bullying, cyberbullying has significant effects on victims at the emotional, psychosocial and academic levels (Kowalski et al, 2010; Tokunaga, 2010).

The aggressors are more likely to present moral disengagement and a lack of empathy (Ortega, Sánchez & Menesini, 2002) and they often exhibit problems in compliance with rules as well as aggressive behaviour (Ybarra & Mitchell, 2007). Furthermore, they are also at a higher risk of using drugs and displaying criminal conduct, social isolation and dependence on technologies (Ybarra, Diener-West & Finkelhor, 2007).

ASSESSMENT OF CYBERBULLYING

The results presented earlier report the existence and current importance of the problem. They also underline the urgent need for further research on the topic and for developing valid and reliable assessment measures that enable not only the comparison of results between studies, but especially the correct identification of this form of harassment in order to provide the appropriate prevention and intervention (Dredge, Gleeson & de la Piedad, 2013; Tokunaga, 2010).

In this sense, although at first the objective of this area of research was to determine the presence of the phenomenon and its impact on the personal, social and academic development of adolescents, in recent years efforts have focused on creating new tools for its assessment, as well as studying the psychometric properties of the existing tools (Berne et al, 2013; Dredge et al, 2013; Menesini et al, 2011; Tokunaga, 2010).

The aim of this second section is, firstly, to identify the main difficulties in assessing cyberbullying today, some of which have already been glimpsed in the previous section and are mostly inherited from the study of traditional bullying. Secondly, the instruments used in some of the most important studies carried out on cyberbullying within and outside our borders will be presented, although there will be special emphasis on the national ones, noting their general characteristics and psychometric properties. For a closer look at the international

instruments, the reader is recommended to refer to the recent review by Berne et al. (2013) in which the characteristics of 44 cyberbullying assessment tools were analysed exhaustively.

As discussed above, regarding the difficulties faced in the assessment of cyberbullying, a distinction can be made between those that are characteristic of the construct and others that were already present in the study of traditional bullying. Among the former, the most significant is the aforementioned lack of consensus regarding the definition of the cyberbullying construct. This lack of conceptual definition is, according to some authors (Tokunaga, 2010), the most widespread methodological problem in the investigation of cyberbullying.

Another difficulty associated with the cyberbullying construct itself is the enormous variety of behaviours it includes, which have been categorised into different classifications (Gairagordobil, 2011; Kowalski et al, 2010; Willard, 2007). These behaviours and classifications are changing along with the rapid development of ICT (Menesini et al., 2011), leading to the quick obsolescence of the existing categorisations and the continuous inclusion and exclusion of new forms of electronic aggression.

As well as the above, the assessment of cyberbullying also has to deal with a number of problems that were already present in the study of traditional bullying. Thus, even using the same definition of cyberbullying, there are instruments that choose to include it explicitly in the presentation of the questionnaire while others do not. Furthermore, even when including the same definition, two instruments can operationalise the construct in very different ways. For example, some instruments pose one single question after the definition of the frequency with which the respondent has perpetrated or suffered the phenomenon, while others have a list of behavioural descriptors in which different forms of cyberbullying appear.

One of the great debates in the assessment of traditional bullying and cyberbullying, has been to clarify the appropriateness of whether to use a single general question after the definition (e.g., "Have you suffered from / carried out this kind of bullying?") or only to include a list of the different experiences of cyberbullying without a previous definition. The studies show the pros and cons of the two types of formats. Among the advantages of the former option is its practical application as it is based on a single item (Solberg & Olweus, 2003). The disadvantages include, firstly, that the definition may be interpreted differently depending on the student's age or culture (Ybarra et al., 2012), and secondly, that the student's response may be influenced by social desirability, since students are very likely to be reluctant to label themselves as victims or perpetrators of cyberbullying (Menesini et al., 2009). As for the model based on behavioural descriptors, its strengths include that it provides a more reliable, valid and accurate measure compared with the estimation provided by a single item (Menesini et al., 2011). Moreover, this range of items can more accurately represent the complexity of the construct. Its limitations include that it cannot cover all situations of cyberbullying and that this format may result in higher prevalence rates, because students may be considering as cyberbullying acts that in fact are not (Gradinger et al., 2009; Ybarra et al., 2012). In this sense, the studies that use both measurement strategies have highlighted the inconsistency between the responses to the global item and the individual descriptors related to participation in cyberbullying situations (Burgess-Proctor et al., 2009), with the affirmative percentages for isolated behaviours being higher than those for the global item. Regardless of whether or not the definition or the behavioural descriptors are included, studies show

that the formats that lead to fewer errors in the classification of student victims and bullies are those that incorporate the specific criteria of bullying and cyberbullying (intentional, repetitive and power imbalance) (Menesini et al, 2010; Ybarra et al, 2012). Moreover, in the case of cyberbullying it would be interesting to include more specific criteria (public, anonymous nature, etc.) (Menesini et al, 2011; Tokunaga, 2010). It is therefore important to keep this in mind when choosing or designing the assessment instrument.

The variations in the format do not end here, we also find questionnaires which, while based on uniform definitions and behavioural listings, employ different time intervals. Thus, some studies ask to what extent the respondent has perpetrated or suffered such incidents since the start of the school year, others in the past year, others in the last two or three months, and some do not establish any kind of time limit. The combination of these variants results in a multitude of assessment tools that can lead to very different prevalence rates as we have already seen (e.g., between 9% and 72% in the US and between 2.5% and 24.6% in Spain).

Another difficulty in assessing cyberbullying is estimating the discriminative power of the items in distinguishing different levels of severity in cyberbullying, because it is not the same to make an offensive comment via a text message as it is to publish a compromising photograph

in a social network. To this end, Menesini et al. (2012), using item response theory (IRT), found that the visual forms of cyberbullying (photographs and videos) were the most serious. However, they found some differences with respect to the previous studies (e.g., Smith et al., 2008), especially in less serious items, concluding that it is important to take cultural differences into account in both the conceptualisation of cyberbullying and the use of new technologies.

Tables 1 and 2 show the most relevant instruments in Spain, and in the European and US contexts, respectively, for evaluating cyberbullying.

In Table 1 we can observe how only one of the six national questionnaires includes the definition of cyberbullying (Ortega et al., 2008), the remaining five incorporate a number of items related to various experiences of cyberbullying (Álvarez-García et al., 2011; Buelga et al., 2010; Calvete et al., 2010; Díaz-Aguado et al., 2013; Gairagordobil & Aliri, 2013), two of which differ between the roles of victim and perpetrator (Díaz-Aguado et al., 2013; Gairagordobil & Aliri, 2013), and one differentiates the electronic medium used (Buelga et al, 2010). Also, while all the instruments include the electronic and intentional dimension of the behaviour evaluated, only two studies incorporate the repetitive nature (Buelga et al, 2010; Ortega et al., 2008). None of them considered the imbalance of power, or other characteristic criteria of cyberbullying (e.g., the public or anonymous

TABLE 1
NATIONAL TOOLS FOR ASSESSING CYBERBULLYING:
CONCEPTUAL AND PSYCHOMETRIC CHARACTERISTICS

Authors and year/Region	Instrument	N	Age/Level of education	Subscales (n° items) and how they are obtained	Definition	Forms/Device	Reliability
Álvarez-García et al. (2011)/Asturias	Cuestionario de Violencia Escolar – Revisado [Questionnaire of School Violence - Revised] (CUVE-R)	638	1st-4th year secondary	The questionnaire includes 31 items grouped into 8 factors. One of them: Violence through ICT (6 items) How often does the teacher / student in the class experience the acts [1 = NEVER, 5 = ALWAYS] EFA/CFA	E, I Does not include definition	Harassment, Violation of privacy Mobile/Social Networks	CUVE-R: $\alpha=0.924$ Does not provide data on the 'Violence through ICT' factor.
Buelga et al. (2010)/Valencia	Escalas de Victimización (EV) a través del teléfono móvil y a través de Internet [Scales of Victimization (SV) via Mobile and via Internet] Includes two questions that evaluate the intensity and duration of the harassment	2,101	1st-4th year secondary	SV Mobile (8 items) SV Internet (10 items) Harassment experienced within the last year [1=NEVER, 4= MANY TIMES/ALWAYS]	E, I, R, Does not include definition	Harassment, Persecution, Denigration, Violation of privacy, Social exclusion, Impersonation Mobile/Internet	SV Mobile: $\alpha=0.76$ SV Internet: $\alpha=0.84$
Calvete et al. (2010)/Vizcaya	Cuestionario Cyberbullying [Cyberbullying Questionnaire] (CBQ)	1,431	12-17 years of age	CB (16 items) How often has any of the 16 behaviours been carried out [0=NEVER, 2=OFTEN] CFA	E,I Does not include definition	Harassment, Persecution, Denigration, Violation of privacy, Social exclusion, Impersonation, Happy slapping Mobile/Internet	$\alpha=0.96$

TABLE 1
NATIONAL TOOLS FOR ASSESSING CYBERBULLYING:
CONCEPTUAL AND PSYCHOMETRIC CHARACTERISTICS (Continued)

Authors and year/Region	Instrument	N	Age/Level of education	Subscales (n° items) and how they are obtained	Definition	Forms/Device	Reliability
Díaz-Aguado et al. (2013)/Spain	Acoso con nuevas tecnologías [Bullying with new technologies] (The instrument also evaluates traditional bullying)	23,100	1st-4th year secondary (12-18 years of age)	Victim (4 items) Aggressor (4 items) Frequency with which the respondent has suffered or committed the 4 behaviours within the last two months. [1=NEVER, 5= ALWAYS] EFA	E, I The definition of traditional bullying appears but not that of cyberbullying	Harassment, Persecution, Violation of privacy, Mobile/Internet	Victim: $\alpha=0.83$ Aggressor: $\alpha=0.91$
Gairagordobil & Aliri (2013)/Basque Country	Cyberbullying: Screening de acoso entre iguales [Cyberbullying: Screening of peer harassment] (Edited by TEA)	3,026	12-18 years of age	Victim (15 items) Aggressor (15 items) Observer (15 items) Inform of the frequency with which the 15 behaviours have been suffered, perpetrated or seen in the last year [0=NEVER, 3=ALWAYS] EFA	E, I Does not include definition	Harassment, Persecution, Denigration, Violation of privacy, Social exclusion, Impersonation, Happy slapping Mobile//Internet	$\alpha=0.91$
Ortega et al. (2008)/Cordoba ¹	Cuestionario Cyberbullying [Cyberbullying questionnaire] (adaptation of the instrument by Smith et al., 2006) Also asks about feelings, coping strategies, etc.	830	1st-4th year secondary	Mobile (2) Internet (2) The global definition appears, which includes several examples and the student has to indicate if s/he has been bullied or has bullied someone in this way via mobile and/or internet in the last two months. [NEVER, ONCE or TWICE, ONCE A WEEK, VARIOUS TIMES A WEEK, OTHER]	E,I,R Includes definition	Harassment, Persecution, Denigration, Violation of privacy, Social exclusion, Impersonation Mobile / Internet	—
<p>Note. The double hyphen (—) is used when no information is given about this in the study. EFA = Exploratory Factor Analysis; CFA = Confirmatory Factor Analysis; CB = Cyberbullying. The following initials represent the defining elements of cyberbullying proposed in the scientific literature (Tokunaga, 2010) and which have been considered in the particular instrument (even if there is no definition included): Electronic medium = E; Intentionality = I; Repetition = R; Imbalance of Power = IP; Anonymity = A; Public/Private = P.</p> <p>¹ The questionnaire is available from: http://www.uco.es/laecovi/img/recursos/RFUY4MDDVCZWHkm.pdf</p>							

nature). All of the instruments reviewed include actions that occurred via mobile and the internet. The types and classifications of behaviours varied in each instrument, although all of the included the form 'harassment' (e.g., insulting or ridiculing with messages or calls), and students had to indicate how often they suffered and/or perpetrated each of the behaviours (generally on a Likert scale of 4 points). Two of the instruments do not impose a time interval (Álvarez-García et al, 2011; Calvete et al., 2010), two others specify 'in the last year' (Buelga et al, 2010; Gairagordobil & Aliri, 2013) and the remaining two 'during the last two months' (Díaz-Aguado et al, 2013; Ortega et al, 2008). From the above, we can see the enormous variability of formats used in the different instruments highlighting what we discussed previously in relation to the difficulties in the conceptualisation and operationalisation of cyberbullying.

As for the psychometric aspects of the instruments reviewed, we can see that, in their construction, exploratory factor analysis (EFA) were conducted in three of the studies (Álvarez-García et al, 2011; Díaz-Aguado et al, 2013; Gairagordobil & Aliri, 2013) and confirmatory factor analysis (CFA) were conducted in two (Álvarez-García et al, 2011; Calvete et al, 2010), in order to validate the construct evaluated. With the exception of one study (Ortega et al., 2008), all of the works provided data of internal consistency as indicators of the reliability of the instruments used. Without undervaluing the efforts of the Spanish researchers to analyse and ensure the psychometric properties of the instruments they have developed (e.g., according to the review by Berne et al., 2013, only 18 of the 44 international instruments analysed reported internal consistency data) it would be interesting in the future to complement these results with other measures of reliability (e.g., test-

retest) and to provide other evidence of validity (e.g., convergent and discriminant validity). Although possibly the first step is, as already mentioned, to agree upon both the definition and the operationalisation of the cyberbullying construct in order to ensure the content validity of the instruments developed.

In Table 2, concerning the international instruments, we can see some similarities with the comments made regarding the national instruments. For more information about the different questionnaires used internationally, again we recommend reading the study by Berne et al. (2013), in which 44 instruments are analysed. Here we have selected the studies that are most cited in the literature and those works not included in Berne's review due to having been published afterwards (e.g., Stewart et al., 2014).

DISCUSSION AND CONCLUSIONS

Based on the above it can be concluded that, despite the large number of investigations carried out in the last decade on cyberbullying, it still seems to be an embryonic field of study. In the future, the experts in the field should work together in order to reach a consensus on the conceptualisation and operationalisation of the phenomenon and to continue to research the validity and reliability of the existing instruments.

Specifically, based on what was stated in the previous sections, a number of future challenges arise in the assessment of cyberbullying and these are presented below:

1. It should be noted that the construction of new assessment tools should be based on the analysis of the advantages and disadvantages of the questionnaires already developed by other researchers to avoid the current situation, in which it is unusual to find the same instrument being used in different studies except those written by the same author (Berne et al, 2013; Tokunaga, 2010).
2. The instruments should be based on a definition of cyberbullying

and this should appear explicitly in the instrument along with the defining criteria that are to be evaluated. In the future, it would be interesting for the instruments to include, as well as the three criteria of traditional bullying (intentional, repetitive and imbalance of power), the differentiating criteria of cyberbullying, at least the ones that refer to its anonymous and public nature.

3. The instruments should include different behavioural descriptors covering the current classifications in cyberbullying (e.g., Willard, 2007). If a general item is opted for (e.g., after the definition of cyberbullying, asking the question have you suffered/committed this kind of bullying?), it is important to include these more specific descriptors in order to identify and differentiate the different types of cyberbullying.
4. A specific time interval should also be specified in the instructions or in the drafting of the items (e.g., within the last two months), especially in studies aimed at prevention or intervention. The use of general or ambiguous terms should be avoided (e.g., "ever" without specifying a time period or "in the past year", which could be interpreted in various ways), as they do not provide data on active cases during a given time interval. This is vital in comparing the prevalence rates among different studies.
5. The instruments should have sufficient validity indicators. It is necessary to develop valid instruments to ensure that they are all measuring the same phenomenon. In this sense, studies are required that provide evidence of the validity of the assessment instruments. Since one of the main problems is the conceptual definition of the construct, it would be advisable to assess the content validity of the instruments by groups of experts to assess whether the items represent the content domain (Sireci & Faulkner-Bond, 2014). Also in relation to the construct validity, the internal structure of the instruments should be studied (e.g., exploratory and confirmatory analysis) and validity evidence provided in relation to other tests that measure the

TABLE 2
INTERNATIONAL INSTRUMENTS FOR ASSESSING CYBERBULLYING:
CONCEPTUAL AND PSYCHOMETRIC CHARACTERISTICS

Authors and year/Region	Instrument	N	Age/Level of education	Subscales (n° items) and how they are obtained	Definition	Forms/Device	Reliability
Beran & Li (2007)/Canada	Cyber-harassment student survey	432	7th-9th grade (12-15 years of age)	Based on the definition of 'harassment' the pupil has to indicate how often s/he has suffered this situation (does not include time limit) . [1=NEVER, 5= ALWAYS]	E, I, R, IP Includes definition of 'harassment'	Mobile/Internet/Computer /Voice mail/Video cameras	—
Hinduja & Patchin (2008)/USA	General cyberbullying measure	1,378	10-17 years of age	2 items: If respondent has ever been bullied/bullied others online.	E, I, R Includes definition of 'online bullying'	Social exclusion, Harassment, Persecution Mobile/Internet	—
Menesini et al. (2011)/Italy	Cyberbullying Scale	1,092	11-18 years of age	Victim (10 items) Aggressor (10 items) Frequency with which the behaviours have been suffered/committed within the last 2 months . [1=NEVER, 5= ALWAYS] CFA	E, I, R, IP Does not include definition	Harassment, Violation of privacy, Denigration, Persecution, Happy slapping Mobile/Internet	Male victims: $\alpha=0.87$ Female victims: $\alpha=0.72$ Male aggressors: $\alpha=0.86$ Female aggressors: $\alpha=0.67$

TABLE 2
INTERNATIONAL INSTRUMENTS FOR ASSESSING CYBERBULLYING:
CONCEPTUAL AND PSYCHOMETRIC CHARACTERISTICS (Continued)

Authors and year/Region	Instrument	N	Age/Level of education	Subscales (n° items) and how they are obtained	Definition	Forms/Device	Reliability
Ortega et al. (2009)/Cordoba ²	DAPNHE Questionnaire ³ European Cyberbullying Research Project (ECRP) (Also evaluates traditional bullying)	1,671	1st-3rd Secondary 1st Bacc.	Mobile (12 items) Internet (12 items) 2 items: How often has s/he suffered/ committed this type of bullying via mobile/internet in the last 2 months [1=NEVER, 5=A NUMBER OF TIMES A WEEK OR MORE] The rest of the items (10) are related to feelings, coping strategies, etc.	E, I, R, IP Includes definition	Harassment, Persecution, Denigration, Violation of privacy. Mobile/Internet	—
Smith et al. (2008)/England	Cyberbullying questionnaire (Also evaluates traditional bullying with Olweus Bullying/Victim questionnaire)	(1) 92 (2) 533	11-16 years of age	If s/he has suffered bullying (1 item) or bullied someone (1 item) through 7 different means. They are also asked since when. [1=NEVER, 5=A NUMBER OF TIMES A WEEK]	E, I, R, IP Includes definition	Media: text message, photos or videos, telephone calls, email, chat rooms, instant messaging and websites. Mobile/Internet.	—
Stewart et al. (2014) /USA	Cyberbullying Scale	736	6th-12th grade (11-18 years of age)	Whether s/he has suffered bullying or has bullied someone through 8 means (2 items, the pupil must indicate the means). Victim (14 items) Frequency with which s/he has suffered any of the 14 behaviours in the past few months. [1=NEVER, 5= A NUMBER OF TIMES A WEEK] EFA/CFA	E, I, Does not include definition	Media: email, text/Twitter messages, images, instant messaging, online videos, social networks, chat rooms, virtual world (The Sims). Harassment, Persecution, Denigration, Social exclusion, Impersonation, Violation of privacy. Mobile/Internet	Victim (14 items): Boys $\alpha=0.94$ Girls $\alpha=0.93$
Ybarra et al. (2006)/ USA	Internet Harassment/Youth Internet Safety Survey	1,501	10-17 years of age	Victim (2 items) Aggressor (2 items) Indicate whether s/he has suffered/ committed any of the 2 behaviours within the last year.	E,I Does not include definition	Harassment, Denigration Internet	—
Ybarra & Mitchell (2008)/USA	Growing up with media (GuwM): youth- reported internet harassment	1,588	10-15 years of age	Victim (3 items) Aggressor (3 items) Frequency with which they have suffered/perpetrated the 3 behaviours in the past year [1=NEVER, 5= ALWAYS] CFA	E, I Does not include definition	Harassment, Denigration, Persecution Internet	Victim: $\alpha=0.79$ Aggressor: $\alpha=0.82$
Williams & Guerra (2007)/USA		3,339	5th-8th grade (10-14 years of age)	1 item ("I tell lies about my classmates via email or text messages")	E, I Does not include definition	Denigration Mobile/Internet	

Note. The double hyphen (—) is used when no information is given about this in the study. EFA = Exploratory Factor Analysis; CFA = Confirmatory Factor Analysis. The following initials represent the defining elements of cyberbullying proposed in the scientific literature (Tokunaga, 2010) and which have been considered in the particular instrument (even if there is no definition included): Electronic medium = E; Intentionality = I; Repetition = R; Imbalance of Power = IP; Anonymity = A; Public/Private = P.

²Although this study was carried out by Spanish authors and in the Spanish population, it has been considered international because the instrument was developed within a European project.

³The instrument is available in its English version from: http://www.bullyingandcyber.net/media/cms_page_media/44/Questionario%20EQCB%20english_4.pdf

same construct or a different one (AERA, APA & NMCE, 2014). In this line and considering that one of the objectives is diagnosis, it would also be advisable to have an external criterion to serve as a gold standard in assessing, for example, the sensitivity and specificity of the instrument.

6. The instruments should have reliability indicators. Among the instruments presented, it has been observed that few of them provide data on reliability and the ones that do so, refer only to the internal consistency. In the future it would be interesting to conduct longitudinal studies that would allow us to obtain information on the test-retest reliability of the instruments.
7. In connection with the above, we would propose the use of the information function (IF) models from item response theory (Muniz, 1997) as an alternative to Cronbach's alpha. It is of particular interest in this context, since the IF would enable us to know the degree of precision with which the instrument is measuring people with high scores on cyberbullying.
8. If we consider that the participants in these types of situation tend to hide this fact, it would be interesting to highlight the importance of using proxies in addition to assessment using self-reports (Benítez, Padilla & Ongena, 2012). It could be very useful to complement the assessment with information obtained from the parents, friends and teachers.
9. Finally, it would be necessary in future studies to incorporate a cultural perspective that would allow us to make cross-cultural comparisons, as suggested by Menesini et al (2012).

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