



## Cyberbullying: a systematic review of research, its prevalence and assessment issues in Spanish studies



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### ABSTRACT

Research on cyberbullying started at the beginning of the 21<sup>st</sup> century and the number of studies on the topic is increasing very rapidly. Nevertheless, the criteria used to define the phenomenon and evaluation strategies are still under debate. Therefore, it is still difficult to compare the findings among the studies or to describe their prevalence in different geographic areas or time points. Thus, the current systematic review has been conducted with the objective of describing the studies on the phenomenon in Spain taking into account its different definitions and evaluation strategies in relation to its prevalence. After conducting systematic searches and applying the inclusion criteria, 29 articles reporting the results of 21 different studies were included. It was found that the number of studies on the topic in Spain is growing and that most of the definitions include the criteria of repetition, intention, and power imbalance. It was also found that timeframes and cut-off points varied greatly among the studies. All the studies used self-reports with one-item or multi-item instruments. The prevalence also varied depending on the evaluation strategies and when assessed with multi-item instruments it was about twice as high as when assessed with one-item instruments. It is suggested that specific instruments should be chosen depending on the research questions posed in each investigation and that it could be useful to unify the criteria for further advancement of the field.

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### Cyberbullying: revisión sistemática de la investigación y aspectos relativos a su prevalencia y evaluación en los estudios españoles

### RESUMEN

La investigación sobre el cyberbullying comenzó a principios del siglo XXI y el número de estudios sobre el tema ha aumentado rápidamente. No obstante, los criterios para definir el fenómeno y las estrategias de evaluación aún están siendo debatidos. Por ello, aún es difícil comparar los resultados de los distintos estudios o describir la prevalencia en distintas zonas geográficas y momentos temporales. Esta revisión sistemática se ha realizado con el objetivo de describir los estudios sobre el fenómeno en España, teniendo en cuenta las diferentes definiciones y estrategias de evaluación en relación con su prevalencia. Una vez realizadas las búsquedas sistemáticas y aplicados los criterios de inclusión, se incluyeron 29 artículos con los resultados de 21 estudios diferentes. Se encontró que el número de los estudios sobre el tema en España está aumentando y que la mayoría de las definiciones incluye los criterios de repetición, intención y desequilibrio de poder. También se encontró que el periodo de tiempo considerado y los puntos de corte varían mucho entre estudios. Todas las investigaciones utilizaron instrumentos de autoinforme, con uno

#### Palabras clave:

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o varios ítems. La prevalencia también variaba en función de las estrategias de evaluación. Así, cuando se evaluaba con instrumentos multi-ítem era aproximadamente dos veces más alta que cuando se evaluaba con instrumentos de ítem único. Se sugiere que sean elegidos instrumentos específicos en función de las preguntas de investigación planteadas en cada estudio y que podría ser útil unificar los criterios con el fin de avanzar en este campo.

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Research on school bullying started in the 1970s (Olweus, 1978) and since then the concept is understood as a specific type of aggression. Aggression is a broader concept and to be considered bullying, at least criteria such as intentionality, repetition or imbalance of power should also be present (Smith & Brain, 2000). Later, research on cyberbullying started at the beginning of the 21<sup>st</sup> century and the number of studies on the topic increased very rapidly throughout the history of the field (Zych, Ortega-Ruiz, & Del Rey, 2015a). Although there is no agreement on whether cyberbullying is just a form of bullying or a different phenomenon, it was found that there is an overlap between the two (Del Rey, Elipe, & Ortega-Ruiz, 2012; Zych, Ortega-Ruiz, & Del Rey, 2015b). This phenomenon has been defined as Internet harassment intentionally perpetrated online (Ybarra & Mitchell, 2004), insults and threats through electronic devices (Juvonen & Gross, 2008), or bullying perpetrated through electronic devices (Li, 2007). There are also other more specific criteria, such as perpetration at school and outside of school with or without anonymity (Tokunaga, 2010), perpetration by groups or by individuals against whom the victims cannot defend themselves (Smith et al., 2008), repetition and willfulness (Hinduja & Patchin, 2008). It is worth mentioning that repetition, power imbalance, and roles present in face-to-face bullying are not completely clear in case of cyberbullying (Slonje, Smith, & Frisen, 2013). Although the criteria are still under discussion, when researchers study cyberbullying, they usually pretend to focus on a specific type of aggressive behavior, narrower than cyberaggression in general. Nevertheless, Bauman, Underwood, and Card (2012) suggest that the studies on cyberbullying are not specific enough and therefore, the concept that is actually studied is cyberaggression.

### Evaluation of Cyberbullying

Cyberbullying is a very complex phenomenon influenced by many different factors (Baldry, Farrington, & Sorrentino, 2015) and, as bullying, it is very difficult to define or measure (Patchin & Hinduja, 2015). Evans, Fraser, and Cotter (2014) conducted a systematic review of anti-bullying interventions, and found that about one fourth of the studies included used one-item evaluation whereas about three fourths used multi-item assessment. The results of these two forms of measuring bullying differed substantially. Among one-item evaluations, desirable effects on victimization and perpetration were found in 83% and 67% of the studies, respectively. On the other hand, in multi-item evaluations, this was found in 57% and 44%, respectively. Bullying and cyberbullying assessment strategies were also systematically reviewed by Vivolo-Kantor, Martell, Holland, and Westby (2014). The authors found that about one third of the studies used the term “bullying” and also about one third included a definition of the phenomenon. Informants also varied among the studies, with the vast majority using self-reports, only about ten percent using peer-nominations, and about five percent using both. Rating scales were used in most of the studies, although about one fourth used dichotomous response. In about forty percent of the studies, timeframes for measuring the phenomena were unknown.

A systematic review of instruments used for evaluating cyberbullying was conducted by Berne et al. (2013). It was found that definitions of cyberbullying and cybervictimization varied among the studies, although both were present in about one half of the instruments. About one half of the studies included devices such as cell phones or e-mail. Internal consistency or validity was reported in about one-half. About one fourth of the studies included a confirmatory factor analysis and almost all the instruments were self-reports.

Taking into account the difficulties in evaluating cyberbullying, together with great differences among the studies, it is still necessary to establish some common standards for assessment. Among other possible difficulties, these big differences among the studies make it very difficult to report or compare the prevalence among different geographic areas or time points. When the same instruments are used before and after interventions, it is possible to measure decrease or increase in the phenomena in the participants of each study (see Farrington & Tfofi, 2009). But it is worth mentioning that many governments provide great amounts of resources and researchers make a great effort with the objective of decreasing bullying or cyberbullying in the whole society, not only in the participants of their studies.

### Interventions against Cyberbullying

Cyberbullying is a new phenomenon, but some interventions against this kind of violence have already been conducted in Spain (Garaigordobil & Martínez-Valderrey, 2015; Ortega-Ruiz, Del Rey, & Casas, 2012) and all over the world (see reviews conducted by Cross et al., 2015; Della Cioppa, O’Neil, & Craig, 2015). At the same time, anti-bullying campaigns have been conducted for decades and started with the suicides of adolescents in Norway attributed to school bullying in the early 1980s. The first international seminar on bullying was carried out by the Council of Europe in 1987. Also in the 1980s, the Norwegian government supported the first anti-bullying national campaign (Roland, 2010). Afterwards, Olweus Bullying Prevention Program was implemented, supported by the Norwegian Ministry of Education and later became an example followed all over the world (Olweus & Limber, 2009). Inspired by the Norwegian program, the Sheffield Anti-Bullying project was conducted in the UK (Smith, 1997) with 23 schools and information packs distributed to 19,000 schools. In Spain, *Sevilla Anti-Violencia Escolar* (SAVE) (Ortega, 1997) and *Andalucía Anti-Violencia Escolar* (ANDAVE) projects were also conducted in the 1990s (Ortega & Del Rey, 2003). Since then, hundreds of interventions have been conducted all over the world (Farrington & Tfofi, 2009), many of them supported by the European Research Council and different national and international calls, some of them even specific to the topic.

### The Current Study

But are these intense efforts bearing fruit? Are bullying or cyberbullying rates in Spain, after twenty years of intervention, increasing, decreasing, or unchanging? These questions can be answered by analyzing and comparing the studies on the

prevalence of the phenomena. Therefore, the first objective of this systematic review is to describe the studies on cyberbullying in Spain, providing a global vision of the field. General information on the topic, taking the number of studies in each year, geographic areas, participants of the studies, sampling methods and the roles studied in each article, is going to be reported.

A label held by a concept is not meaningful unless it is clearly defined and operationalized. Studies that use the same label but with concepts defined and operationalized in different ways can even evaluate completely different constructs. Therefore, another objective of the study is to analyze the concept that is being studied in the Spanish research on cyberbullying, taking into account the definition used in each study and its evaluation. Also, the psychometric properties of the instruments are analyzed, with a specific attention to the election of one-item or multi-item evaluations in relation to the cut-off scores and timeframes. Timeframes are important since prevalence might differ when the participants give their answers on what happened, for example, in the past month or during their lifetime. The cut-off points are important since they indicate the frequency of each behavior to be classified as cyberbullying. Moreover, the concept measured changes depending on whether the cut-off is applied to a global one-item measure (e.g., How many times have you been cyberbullied?), to the total score in a scale (e.g., a summation of scores in items such as having insulted, having stolen the identity, having uploaded pictures, etc.) or to any item in the scale (e.g., classifying a participant who reported having insulted somebody on the Internet once as a cyberbully). Finally, prevalence of cyberbullying in relation to its evaluation is going to be reported.

## Method

### *Search Strategies*

Searches were conducted between October 2015 and December 2015 in the Web of Science and Scopus. Only these two databases were searched given the fact that they are the most prestigious ones in Spain. Most of the evaluation agencies in Spain require publications in these databases and articles published in journals included in the Web of Science or Scopus receive the highest scores in evaluation procedures. At the same time, describing prevalence requires very high methodological standards and the biggest samples possible. Thus, it was assumed that researchers who conducted these studies would choose journals included in the Web of Science or Scopus for publishing at least some of the reports of each research project.

Searches were conducted with the following keywords: cyberbullying, cyber-bullying, electronic bullying, Internet bullying, Internet harassment, online harassment. Results were refined by country/territory in "Spain" with all the available years and languages. On the Web of Science, keywords were searched in topics, whereas in Scopus they were searched in titles/abstracts/keywords.

In the Web of Science, 62 records were located and exported to EndNote software and then, 58 records were located in Scopus and also exported to EndNote. After eliminating duplicates, 79 references were included for further scanning. Eleven meeting abstracts or conference papers and one letter to the editor were eliminated and two references were delayed because authors and studies were from Italy or Mexico and were classified as Spanish by mistake. Thus, 65 references were included for further scanning. Eighteen articles were excluded because they did not report prevalence, 12 were excluded because they were theoretical review articles, 2 were excluded because cyberbullying was not specifically

measured, 3 had adult participants, and one was conducted with a Mexican sample. The total number of articles included in the systematic review was 29, reporting the results of 21 different studies. All the articles included are in [Table 1](#) and the excluded documents, together with the rationale for their exclusion, in the Appendix.

### *Inclusion Criteria*

1. Empirical studies on cyberbullying in Spain published in peer-reviewed journals included in the Web of Science or Scopus. Meeting abstracts, letters or theoretical reviews were excluded.
2. Articles that provide information on prevalence of cyberbullying in Spain. Articles were included if percentages or numbers of students involved in the phenomenon were provided.
3. Cyberbullying was specifically measured through an instrument described in the article. Studies were excluded if cyberbullying was mentioned but without describing its evaluation.
4. Participants of the study were children or adolescents.

### *Coding Strategies*

First, articles published by the same groups of authors were scanned to check if they were based on the same samples. If the number of participants and other data (such as percentages of girls/boys, numbers of schools, etc.) were identical, they were described as one study. If these data were similar but not identical, authors were contacted by e-mail and asked which articles shared the same participants. All the authors provided the requested information and studies were described as one or separately based on their answers. Coding of all the studies included was done by two independent researchers and discrepancies were discussed and solved. Definitions of cyberbullying used in each study were included in the coding sheet. If the article was published in English, the definition was extracted literally and, if it was published in Spanish, it was translated into English. Information about participants, such as the total number of participants in the study, the number of schools, the educational level, the age or grade (depending on the information available in each document), the percentage of girls and boys, the sampling and the geographic area were included in the coding sheet. If a study was conducted with participants from different countries (e.g., [Del Rey et al., 2015](#)), only results and samples from Spain were included. The type of instrument used to evaluate cyberbullying was also described in the coding sheet considering if it was a self-report or other-report, the name of the instrument, the number of items, a reliability statistic (alpha and/or omega), factors and response scales (Likert vs. dichotomous and the response options). If different instruments were used with different purposes (e.g., [Buelga, Cava, & Musitu, 2010](#)) only the instrument, the scale, or items used to establish the prevalence of cyberbullying were described. The coding sheet included also information on the roles of the participants studied in each report (victims, perpetrators, bully/victims, by-standers). Timeframes used in the instruments were also described (e.g., the past year, the past two months, etc.). Cut-off points for classifying the participants to different roles in cyberbullying were described. The overall prevalence (in percentage) of the involvement in each role studied was also included in the coding sheet. If this was not available in an article, but the numbers of participants in each role were provided, percentages were calculated. Overall mean prevalence per role was also calculated with only one percentage per study. For example, when the mean prevalence was given separately for victimization through the cell phone and the internet, the mean of these two values was included in the overall prevalence calculation.

**Table 1**  
Description of the Studies on Cyberbullying Included in the Systematic Review.

Study and definition	Participants	Instrument	Psychometric properties	Roles and timeframe	Cut-off	Prevalence
Álvarez-García, Núñez, Álvarez-Pérez et al. (2011), violence through the ICT defined as an intentional behavior causing damage or prejudice through the Information and Communication Technologies, mainly by the mobile phone or the Internet.	638 adolescents, Compulsory Secondary Education, Grades 1 to 4; 50.3% boys and 49.70% girls. Random selection, 6 schools, Asturias.	Self-report: One factor (Violence through Information and Communication technologies) of the School Violence Questionnaire-Revised (CUVE-R) (Álvarez-García, Núñez, Rodríguez, Álvarez, & Dobarro, 2011)	6 items, 5-point Likert scale ( <i>never, a few times, sometimes, many times, always</i> ). Alpha reported for the whole questionnaire – $\alpha = .92$	By-standing; timeframe not specified	Sometimes or more	By-standing: 35.4% to 51.9% depending on behavior (no overall prevalence)
Álvarez-García, Núñez, Dobarro, and Rodríguez (2015), cybervictimization defined as “suffering peer aggression by cellphone or Internet, which mainly consists of written or visual aggressions, exclusion and impersonation” (Nocentini et al., 2010) and cyberbullying victimization or severe victimization defined as “varied aggressions, and these aggressions are frequent and maintained over time, generally due to victim’s inferiority”	3180 adolescents, Compulsory Secondary Education, between 11 and 19 years old, 48.5% boys and 51.5% girls. Random selection, 16 schools, Asturias	Self-Report: Cybervictimization Questionnaire (CVQ) (Álvarez-García, Dobarro, & Núñez, 2015)	26 items, 4-point Likert scale ( <i>never, a few times, often, always</i> ), 1 factor, $\alpha = .85$ .	Victimization, the past three months	Non-victims: “never” in all the items Occasional: < percentile 95 Frequent > percentile 95	Victimization (78.31%) Occasional: 72.74% Frequent: 5.57%
Buelga et al. (2010), cyberbullying defined as an aggressive and intentional act, repeated with frequency over time, by an individual or a group, through electronic devices from which a victim cannot defend themselves (Smith et al., 2008). It’s intentional, repeated and there is an imbalance of power between the perpetrator and the victim.	2101 adolescents, Compulsory Secondary Education, Grades 1 to 4, 52.26% boys and 47.74% girls. Stratified random selection, 11 schools, Valencian Community.	Self-report: Intensity of victimization through the mobile phone and through the Internet	One-item for mobile phone and one-item for the Internet. 6-point Likert scale ( <i>never, once, 2 or 3 times, 1 or 2 times a month, 1 or 2 times a week, every day or almost every day</i> ).	Victimization, the past year	Non-victims: never and once Moderate victims: 2 or 3 times and 1 or 2 times a month Severe victims: 1 or 2 times a week and every day	Mobile phone victimization (24.6%) Moderate: 9.2% Severe: 15.4% Internet victimization (29%) Moderate: 13.4% Severe: 15.5%
Buelga, Cava, Musitu, and Torralba (2015), “cyberbullying through new information and communication technologies occurs by using, individually or in a group, electronic devices such as mobile phones, e-mail, chat rooms, social networks, blogs and web pages to deliberately and repeatedly victimize someone through personal attacks, insults and other means” (various authors cited).	1415 adolescents, Compulsory Secondary Education, Grades 1 to 4, 53% boys and 47% girls. Convenience sampling, 9 schools, Valencian Community.	Self-report: Intensity of aggression through the mobile phone and through the Internet	One-item for mobile phone and one-item for the Internet. 6-point Likert scale ( <i>never, once, 2 or 3 times, 1 or 2 times a month, 1 or 2 times a week, every day or almost every day</i> ).	Perpetration, the past year	Non-perpetrators: never and once Moderate perpetrators: 2 or 3 times and 1 or 2 times a month Severe perpetrators: 1 or 2 times a week and every day	Perpetration (32%) Moderate perpetrators: 26.8% Severe perpetrators: 5.2%
Buelga, Iranzo, Cava, and Torralba (2015), cybernetic abuse defined as “aggressive, repetitive, deliberate behavior among peers in which a person or group uses electronic devices to abuse a victim who cannot easily defend themselves” (Smith et al., 2008).	877 adolescents, Compulsory Secondary Education, Grades 1 to 4, 48.6% boys and 51.4% girls. Stratified random selection, 5 schools, Valencian Community.	Self-report: The Cyb-agres scale by Buelga and Pons (2012)	10 items, 5-points Likert scale ( <i>never, rarely, sometimes, fairly often and often</i> ), $\alpha = .89$ . Factors – not specified.	Perpetration, the past year	Non-perpetrators: “never” in all the questions Severe perpetrators: one standard deviation above mean Occasional perpetrators: the rest	Perpetration (56.5%) Occasional: 46.0% Severe: 10.5%

Table 1 (Continued)

Study and definition	Participants	Instrument	Psychometric properties	Roles and timeframe	Cut-off	Prevalence
<a href="#">Buelga &amp; Pons (2012)</a> , cyberbullying defined as an aggressive and intentional act, repeated with frequency over time, by an individual or a group, through electronic device from which a victim cannot easily defend themselves ( <a href="#">Smith et al., 2008</a> ).	1390 adolescents, Compulsory Secondary Education, Grades 1 to 4, 53.23% boys and 46.76% girls. Stratified random selection, 8 schools, Valencian Community.	Self-report: Intensity of aggression through the mobile phone and through the Internet	One-item for mobile phone and one-item for the Internet. 6-point Likert scale ( <i>never, once, 2 or 3 times, 1 or 2 times a month, 1 or 2 times a week, every day or almost every day</i> ).	Perpetration, the past year	Non-perpetrators: never and once Moderate perpetrators: 2 or 3 times and 1 or 2 times a month Severe perpetrators: 1 or 2 times a week and every day	Perpetration (31.4%) Moderate: 26.5% Severe: 4.9%
<a href="#">Calvete et al. (2010)</a> / <a href="#">Estévez, Villardón, Calvete, Padilla, and Orue (2010)</a> , cyberbullying defined as “an aggressive and deliberate behavior that is frequently repeated over time, carried out by a group or an individual using electronics and aimed at a victim who cannot defend him- or herself easily” ( <a href="#">Smith, 2006</a> ), “deliberate and repeated harm performed with some kind of electronic text” ( <a href="#">Patchin &amp; Hinduja, 2006</a> ), “by means of cell phone, electronic mail, Internet chats, and online spaces such as MySpace, Facebook, and personal blogs”.	1431 adolescents, Compulsory Secondary Education, Grades 1 to 4, 47.66% boys and 50.73% girls. Stratified random selection, 10 schools, Bizkaia.	Self-report: 1. The Cyberbullying Questionnaire (CBQ) – perpetration 2. The Cyberbullying – Victimization Questionnaire (CBQ-V) – victimization. Both developed for the study.	Perpetration (CBQ): 16 items, 3-point Likert scale ( <i>never, sometimes, often</i> ), 1 factor tested with CFA, $\alpha = .96$ Victimization (CBQ-V): 11 items, 3-point Likert scale ( <i>never, sometimes, often</i> ), 1 factor tested with CFA, $\alpha = .95$	Perpetration and victimization; ever	Sometimes or more in at least one of the items	Perpetration: 44.1% Victimization: 30.1%
<a href="#">Cuadrado-Gordillo and Fernández-Antelo (2014)</a> , direct cyberbullying defined as “cyber-attacks perpetrated against the victim without any public disclosure of them” and indirect cyberbullying defined as “either the use of others to harass the victim in cyberspace, or disseminating materials, comments or messages over the network making the attack public to an unknown number of people”.	1648 adolescents, Compulsory Secondary Education, Grades 1 to 4, 51.1% boys and 48.9% girls. Stratified random selection, 20 schools, Badajoz.	Self-report: a questionnaire (no name reported)	22 items, 4-point Likert scale ( <i>never, once or twice, once a week, various times a week</i> ), factors – not specified, victimization $\alpha = .84$ , perpetration $\alpha = .83$	Bully/victim; past two months	Not specified	Bully/victims: 3.22%
<a href="#">Del Rey et al. (2015)</a> , cyberbullying defined as “clearly intentional aggression or hostile or harmful act carried out through and electronic device repeatedly over time by setting up an imbalance of powers between the aggressor and the victim” ( <a href="#">Tokunaga, 2010</a> ).	859 adolescents, Compulsory Secondary Education, Grades 1 to 4, 47.7% boys and 52.3% girls. Convenience sampling, 3 schools, Córdoba.	Self-Report: The European Cyberbullying Intervention Project Questionnaire (ECIPQ; <a href="#">Brighi et al., 2012</a> )	22 items, 5-point Likert scale ( <i>never, once or twice, once a month, once a week, more times a week</i> ), 2 factors tested with CFA, victimization $\alpha = .97$ , perpetration $\alpha = .93$ (Omega = .99, $\alpha = .96$ )	Victimization, perpetration and bully/victim; past two months	Victimization: once a month or more to any item on victimization and once or twice or less in any item on perpetration.  Perpetration: vice versa  Bully/Victims: once a month or more in any item on victimization and perpetration	Implication: 11.87% Victimization: 4.65% Perpetration: 5.12% Bully/Victim: 2.09%
<a href="#">Elipe et al. (2012)</a> , cyberbullying which shares with bullying aggressive intention, the roles and the repetition, with particular characteristics such as electronic devices, different audience, publicity and permanence.	5754 adolescents, Compulsory Secondary Education, Grades 1 to 4 and upper Secondary Education (Bachillerato), 50.8% boys and 49.2% girls. Stratified random selection, 24 schools, Andalusia.	Self-report: questions from the Questionnaire on Convivencia, Conflicts and School Violence ( <a href="#">Ortega, Del Rey, &amp; Mora-Merchán, 2008</a> )	One-item for cybervictimization and one for perpetration through mobile phone or the Internet, 4-point Likert scale ( <i>never, a few times, about once a week, many times a week</i> )	Perpetration and victimization; past three months	A few times or more	Involvement in cyberbullying through the Internet: 12.4% Involvement in cyberbullying through the mobile phone: 7.3%

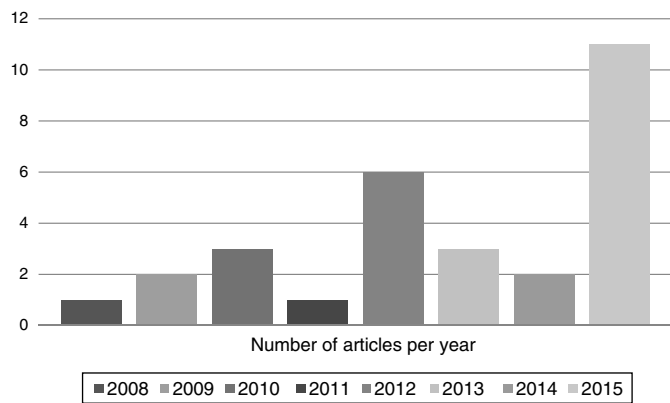
Table 1 (Continued)

Study and definition	Participants	Instrument	Psychometric properties	Roles and timeframe	Cut-off	Prevalence
<b>Gámez-Guadix et al. (2015) / Gámez-Guadix, Orue, Smith, and Calvete (2013)<sup>b</sup></b> cyberbullying defined as “repetitive aggression carried out via electronic media (i.e., cell phones, Internet)”, “traditional bullying and cyberbullying share several features in common, the latter differs in its anonymity, possibility of occurrence at any time of the day and potentially larger audience” (Kowalski, Morgan, & Limber, 2012).	Time 1: 1021 adolescents, Compulsory Secondary Education, 13–17 years old. Random selection, 10 schools, Bizkaia. Time 2: 845 adolescents, Compulsory Secondary Education, Age <i>M</i> = 15.22 ( <i>SD</i> = 1.2), 39.9% boys and 58.9% girls. Time 3: 680 adolescents, Compulsory Secondary Education, Age <i>M</i> = 14.8 ( <i>SD</i> = 0.95), 39.55% boys and 60.29% girls.	Self-report: Cyberbullying Questionnaire (Calvete et al., 2010; Gámez-Guadix, Villa, & Calvete, 2014)	Two factors – victimization and perpetration. 4-point Likert scale ( <i>never, 1 or 2 times, 3 to 4 times, 5 or more times</i> ), $\alpha = .77$ Victimization: 9 items, $\alpha = .62-.69$ Perpetration: 14 items: $\alpha = .75-.77$	Victimization and bully/victim status; ever	Based on cluster analysis (Time 1 and 3) and not specified (Time 1 and 2)	Time 1 and Time 3 <sup>b</sup> Time 1 but not time 3 victims: 14.56% Time 3 but not time 1 victims: 17.65% Time 1 and Time 3 victims: 5.88%  Time 1 Victims: 16.53% Bully-Victims: 46.61%  Time 1 and Time 2 Victims: 52.7% (received one or more behaviors)
<b>Garaigordobil (2015a, 2015b) / Garaigordobil and Aliri (2013)</b> , cyberbullying defined as “using information and communication technologies, mainly Internet, and cellphones to perform psychological peer harassment”, “aggressive and intentional behavior repeated frequently over time by means of the use, by an individual or group, of electronic facilities targeting a victim who cannot easily defend him- or herself” (Smith et al., 2008).	3026 adolescents, Compulsory Secondary Education, and upper Secondary Education (Bachillerato), 12–18 years old, 48.5% boys and 51.5% girls. Stratified random selection, 10 schools, Basque Country.	Self-report: Cyberbullying Screening of Peer Harassment (Garaigordobil, 2013).	45 items, 4-point Likert scale ( <i>never, sometimes, several times, always</i> ), $\alpha = .91$ , three factors: victimization ( $\alpha = .82$ ), aggression ( $\alpha = .91$ ), by-standing ( $\alpha = .87$ ).	Perpetration and victimization and by-standing; the past year	One or more behaviors	Victimization: 30.2% Perpetration: 15.5% By-standing: 65.1%
<b>García-Fernández, Romera Félix, and Ortega-Ruiz (2015)</b> , “cyberbullying shares the three defining characteristics of bullying – intentionality, repetition and power imbalance – but specific features such as anonymity and publicity, must be included” (various authors cited).	1278 children, Grades 5 and 6 of Primary Education, 52.3% boys and 47.7% girls. Stratified random selection, 16 <sup>a</sup> schools, Southern Spain.	Self-Report: implication in cyberbullying	One-item on having felt intimidated, rejected or mistreated via mobile or the Internet by a peer and one on having intimidated, rejected or mistreated a peer via mobile or the Internet, 4-point Likert scale ( <i>never, rarely, about once a week, and a few times a week</i> )	Victimization, perpetration and bully/victim; the past three months	Occasional: rarely Frequent: about once a week or more  Perpetrators were involved in aggression and not victimization. Victims – vice versa. Bully/Victims in both.	Victimization (10.1%) Occasional: 8.2% Frequent: 1.9%  Perpetration (5.8%) Occasional: 4.1% Frequent: 1.6%  Bully/Victim (3.6%) Occasional: 2.7% Frequent: 0.9%
<b>García-Moya et al. (2014)</b> , cyberbullying defined as “the use of the Internet or other electronic communication devices, such as cell phones, as a medium to harass or hurt someone” (Kowalski & Limber, 2007).	7580 adolescents, 13–18 years old, percentages of girls and boys not reported. Stratified random selection, data collected online (no number of schools is reported), Spain.	Self-report: Questions on cyberbullying from Revised Olweus Bully/Victim Questionnaire (Olweus, 1996)	Not specified but probably (based on the result section), one item for “bullied using a computer” and one item for “bullied using cell phone”	Victimization; probably the past couple of months <sup>c</sup>	2 or 3 times a month or more	Victimization (5%) Bullied using a computer: 4% Bullied using mobile phone: 3.6%
<b>Giménez-Gualdo, Hunter, Durkin, Arnaiz, and Maquilón (2015) / Giménez, Maquilón, and Arnaiz (2015)</b> , “being cruel to others by sending or posting harmful material or engaging in other forms of social aggression using the Internet or other digital technologies” (Willard, 2007).	1353 adolescents, Compulsory Secondary Education, and upper Secondary Education (Bachillerato), 12 to 20 years old, 47.3% boys and 52.7% girls. Random selection, 21 schools, Murcia.	Self-report: CYBERBULL Questionnaire (Giménez, Arnaiz, & Maquilón, 2013)	One-item asking about the involvement (yes/no) after a definition of cyberbullying.	Perpetration, victimization and bully/victim; Ever	Yes (to one of the roles or to both)	Involvement (8.3%) Victimization: 5.62% Perpetration: 1.37% Bully/Victim: 1.31%

Table 1 (Continued)

Study and definition	Participants	Instrument	Psychometric properties	Roles and timeframe	Cut-off	Prevalence
León del Barco, Castaño, Bullón, and Carroza (2012), cyberbullying defined as intentional aggression, by a group or an individual, using recurrently electronic form of contact (mobiles, Internet) on a victim who cannot defend themselves (Smith et al., 2008).	1708 adolescents, Compulsory Secondary Education, Grades 1 to 4, 49.2% boys and 50.8% girls. Stratified random selection, 22 schools, Extremadura.	Self-Report: Cyberbullying Questionnaire (Ortega, Calmaestra, & Mora-Merchán, 2007)	Number of items, alpha, factor analysis - not specified, 4-point Likert scale ( <i>never to many times a week</i> )	Victimization and perpetration; timeframe not specified	Not specified	Victimization: 6% Perpetration: 6.4%
Navarro et al. (2012)/ Navarro & Yubero (2012), "any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" (Tokunaga, 2010).	1127 children, Primary Education, Grades 5 and 6, 10-12 years old, 51.11% boys and 49.89% girls. Random selection, 13 schools, Cuenca.	Self-report: Internet Victimization Scales (Buelga et al., 2010)	10 items, 5-point Likert scale ( <i>never, once a month, once a week, once a day, several times a day</i> ), $\alpha = .80$ , no factors specified	Victimization; past six months	Once a week or more in at least one of the items	Victimization: 24.2%
Navarro et al. (2013), "any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" (Tokunaga, 2010).	1068 children, Primary Education, Grades 5 and 6, 10-12 years old, 51.31% boys and 48.69% girls. Random selection, 11 schools, Cuenca.	Self-report: Internet Victimization Scales (Buelga et al., 2010)	10 items, 5-point Likert scale ( <i>never, once a month, once a week, once a day, several times a day</i> ), $\alpha = .80$ , no factors specified	Victimization, past six months	Once a week or more in at least one of the items	Victimization: 24.6%
Navarro et al. (2015), cyberbullying defined as "behavior displayed through electronic or digital media with the intention of causing harm to another person through repeated hostile conduct (Ortega et al., 2012)", "an intentional aggressive behavior done repeatedly to the same target".	1058 children, Primary Education, Grades 5 and 6, 10-12 years old, 51.23% boys and 48.77% girls. Random selection, 17 public schools, Castilla La Mancha.	Self-report: Spanish Cyberbullying Questionnaire - victimization (CBQ-V, Estévez et al., 2010) and perpetration (CBQ; Calvete et al., 2010)	20 items (10 each scale), 5-point Likert scale ( <i>never, once or twice, 2 or 3 times a month, once a week, several times a week</i> ), $\alpha = .82$ for victimization, $\alpha = .83$ for perpetration, 1 factor	Perpetration and victimization; past three months	Several times a week in at least one of the items	Victimization: 4.6% Perpetration: 2%
Ortega, Calmaestra, and Mora-Merchán (2008) / Ortega, Elipe, and Calmaestra (2009), cyberbullying defined as a repeated aggressive and intentional act, perpetrated by an individual or a group through electronic devices, from which a victim cannot easily defend themselves (Smith et al., 2008).	830 adolescents, Compulsory Secondary Education, Grades 1 to 4, 49.76% boys and 50% girls. Convenience sampling, 10 schools, Córdoba.	Self-Report: Cyberbullying Questionnaire (Ortega et al., 2007)	One-item asking about victimization / perpetration through the Internet or mobile phone after a definition of cyberbullying, 4-point Likert scale ( <i>never, only once or twice, about once a week, several times a week</i> )	Perpetration, victimization and bully/victim; past two months	Occasional: only once or twice Frequent: about once a week or more  Victims respond never to perpetration, perpetrators never to victimization and bully/victims give affirmative answers to both	Overall: 26.6% Occasional (22.8%) Victimization: 9.3% Perpetration: 5.7% Bully/Victim: 7.8%  Frequent (3.8%) Victimization: 1.5% Perpetration: 1.7% Bully/Victim: .6%
Ortega, Elipe, Mora-Merchán, Calmaestra, and Vega (2009)/ Ortega et al. (2012), cyberbullying defined as "a form of bullying that uses electronic means with the intention of causing harm to another person through repeated hostile conduct.	1671 adolescents, Compulsory Secondary Education, 12-17 years old, 51.3% boys and 48.7% girls. Random selection, 7 schools, Córdoba.	Self-Report: Cyberbullying Questionnaire (Ortega et al., 2007)	One-item asking about victimization / perpetration through the Internet or mobile phone after a definition of cyberbullying, 4-point Likert scale ( <i>never, only once or twice, about once a week, several times a week</i> )	Victimization, past two months	Occasional: only once or twice Frequent: about once a week or more	Mobile phone victimization (4.2%) Occasional: 3.7% Severe: .5%  Victimization by the Internet (7.5%) Occasional: 6.2% Severe 1.3%

Note. <sup>a</sup> Personal communication. <sup>b</sup> These two articles include longitudinal data comparing Time 1 with Time 2 (6 months later) and Time 1 with Time 3 (1 year later) (e-mail communication with the authors). <sup>c</sup> This is not specified in the article but it was assumed that the usual timeframe for Olweus Bully/Victim questionnaire was used.



**Figure 1.** The Number of Articles on Cyberbullying Published by Spanish Authors in High Impact Journals.

## Results

The first study on cyberbullying in Spain published in a high impact journal was conducted by Ortega, Calmaestra et al. (2008). Since then, the number of publications has been growing very rapidly (see Figure 1).

Five studies have been conducted in Andalusia (Del Rey et al., 2015; Elipe, Ortega, Hunter, & Del Rey, 2012; García-Fernández et al., 2015; Ortega, Calmaestra et al., 2008; Ortega, Elipe, & Calmaestra, 2009; Ortega, Elipe, Mora-Merchán et al., 2009), two in Asturias (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011; Álvarez-García, Núñez et al., 2015), three in the Basque Country (Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Gámez-Guadix, Gini, & Calvete, 2015; Garaigordobil, 2015a), three in Castilla La Mancha (Navarro, Ruiz-Oliva, Larrañaga, & Yubero, 2015; Navarro, Serna, Martínez, & Ruiz-Oliva, 2013; Navarro, Yubero, Larrañaga, & Martínez, 2012), two in Extremadura (Cuadrado-Gordillo & Fernández-Antelo, 2014; León del Barco et al., 2012), one in Murcia (Giménez-Gualdo et al., 2015), four in the Valencian Community (Buelga et al., 2010; Buelga, Cava et al., 2015; Buelga, Iranzo et al., 2015; Buelga & Pons, 2012) and one was conducted in the whole country (García-Moya, Suominen, & Moreno, 2014).

The total number of students participating in the studies was 41,013. The mean number of participants by study was of 1,953 ( $SD=1720.42$ ), ranging from 638 (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011) to 7,580 (García-Moya et al., 2014). The total number of schools that participated in the studies was 249 ( $M=12.45$ ,  $SD=5.97$ ), ranging from 3 (Del Rey et al., 2015) to 24 (Elipe et al., 2012). Adolescents were the most studied age group with 16 studies conducted in Compulsory Secondary Education (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011; Álvarez-García, Núñez et al., 2015; Buelga et al., 2010; Buelga, Cava et al., 2015; Buelga, Iranzo et al., 2015; Buelga & Pons, 2012; Calvete et al., 2010; Cuadrado-Gordillo & Fernández-Antelo, 2014; Del Rey et al., 2015; Elipe et al., 2012; Gámez-Guadix et al., 2015; Garaigordobil, 2015a; Giménez-Gualdo et al., 2015; León del Barco et al., 2012; Ortega, Calmaestra et al., 2008; Ortega, Elipe, Mora-Merchán et al., 2009), of which three (Elipe et al., 2012; Garaigordobil, 2015a; Giménez-Gualdo et al., 2015) included also upper secondary schools (Bachillerato). Primary schools were aimed in 4 studies (García-Fernández et al., 2015; Navarro et al., 2012; Navarro et al., 2013; Navarro et al., 2015) and one was conducted online with adolescents without specifying the school level (García-Moya et al., 2014).

In 10 studies (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011; Álvarez-García, Núñez et al., 2015; Buelga et al., 2010; Buelga, Iranzo et al., 2015; Buelga & Pons, 2012; Elipe et al., 2012; Garaigordobil, 2015a; García-Fernández et al., 2015; León del Barco

et al., 2012; Navarro et al., 2015), participants were randomly selected within the autonomous community (regions), among which, in 7 studies, the selection was stratified (Buelga et al., 2010; Buelga, Iranzo et al., 2015; Buelga & Pons, 2012; Elipe et al., 2012; Garaigordobil, 2015a; García-Fernández et al., 2015; León del Barco et al., 2012). In 7 studies, participants were randomly selected within one province<sup>1</sup> (Calvete et al., 2010; Cuadrado-Gordillo & Fernández-Antelo, 2014; Gámez-Guadix et al., 2015; Giménez-Gualdo et al., 2015; Navarro et al., 2012; Navarro et al., 2013; Ortega, Elipe, Mora-Merchán et al., 2009), among which, in 2 studies, the selection was stratified (Calvete et al., 2010; Cuadrado-Gordillo & Fernández-Antelo, 2014). Convenience sampling within one province (Del Rey et al., 2015; Ortega, Calmaestra et al., 2008) and one autonomous community (Buelga, Cava et al., 2015) were also used and there was one study that used stratified random selection in the whole country (García-Moya et al., 2014).

Three studies evaluated perpetration only (Buelga, Cava et al., 2015; Buelga, Iranzo et al., 2015; Buelga & Pons, 2012); six studies evaluated victimization only (Álvarez-García, Núñez et al., 2015; Buelga et al., 2010; García-Moya et al., 2014; Navarro et al., 2012; Navarro et al., 2013; Ortega, Elipe, Mora-Merchán et al., 2009), one bully/victim status only (Cuadrado-Gordillo & Fernández-Antelo, 2014) and one by-standing only (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011). Four studies focused on perpetration and victimization (Calvete et al., 2010; Elipe et al., 2012; León del Barco et al., 2012; Navarro et al., 2015), four on perpetration, victimization, and bully/victim status (Del Rey et al., 2015; García-Fernández et al., 2015; Giménez-Gualdo et al., 2015; Ortega, Calmaestra et al., 2008), one on perpetration, victimization, and by-standing (Garaigordobil, 2015a), and one on victimization and bully/victim status (Gámez-Guadix et al., 2015).

### *The Concept of Cyberbullying: Definitions, Evaluation and Cut-off Points*

The most popular definition cited in the Spanish studies was the one proposed by Smith et al. (2008), in which cyberbullying is defined as repeated intentional aggression, perpetrated by a group or an individual, using electronic devices, on a victim who cannot easily defend him/herself (Buelga et al., 2010; Buelga, Iranzo et al., 2015; Buelga & Pons, 2012; Calvete et al., 2010; Garaigordobil, 2015a; León del Barco et al., 2012; Ortega, Calmaestra et al., 2008). Also the definition proposed by Tokunaga (2010), according to which cyberbullying is an intentional, repeated, and harmful aggression perpetrated through the electronic devices characterized by an imbalance of power, was frequently used (Del Rey et al., 2015; Navarro et al., 2012; Navarro et al., 2013). In general, the vast majority of the definitions stated that cyberbullying is perpetrated through the electronic devices, that it is intentional, repeated and that there is an imbalance of power between the perpetrator and the victim.

All the studies utilized self-reports to evaluate cyberbullying. Multi-item questionnaires with Likert response scales were the most popular, present in 11 studies (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011; Álvarez-García, Núñez et al., 2015; Buelga, Iranzo et al., 2015; Calvete et al., 2010; Cuadrado-Gordillo & Fernández-Antelo, 2014; Del Rey et al., 2015; Gámez-Guadix et al., 2015; Garaigordobil, 2015a; Navarro et al., 2012; Navarro et al., 2013; Navarro et al., 2015) followed by one-item evaluations also with Likert response scales in 8 studies (Buelga et al., 2010; Buelga, Cava et al., 2015; Buelga & Pons, 2012; Elipe et al., 2012;

<sup>1</sup> Please note that Murcia is an autonomous community that only has one province and, therefore, it was included among the studies in "one province".



García-Fernández et al., 2015; García-Moya et al., 2014; Ortega, Calmaestra et al., 2008; Ortega, Elipe, Mora-Merchán et al., 2009).

Timeframes for reporting different forms of involvement varied among the studies, with three asking about behaviors that “ever” happened (Calvete et al., 2010; Gámez-Guadix et al., 2015; Giménez-Gualdo et al., 2015), two that did not specify any timeframe (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011; León del Barco et al., 2012), five focusing on the past year (Buelga et al., 2010; Buelga, Cava et al., 2015; Buelga, Iranzo et al., 2015; Buelga & Pons, 2012; Garaigordobil, 2015a), two on the past six months (Navarro et al., 2012; Navarro et al., 2013), one on the past couple of months (García-Moya et al., 2014), four on the past three months (Álvarez-García, Núñez et al., 2015; Elipe et al., 2012; García-Fernández et al., 2015; Navarro et al., 2015), and four on the past two months (Cuadrado-Gordillo & Fernández-Antelo, 2014; Del Rey et al., 2015; Ortega, Calmaestra et al., 2008; Ortega, Elipe, Mora-Merchán et al., 2009).

The cut-off points used to classify participants as cyberbullies, cybervictims, or cyber bully/victims also differed among the studies. Among evaluations using one item, some classified students as involved when their response was above the lowest possible point (e.g., if a scale ranged from 0 to 3, answers 1, 2, and 3 would be classified as involved; 1 *occasional*, 2 and 3 *severe*) (Elipe et al., 2012; García-Fernández et al., 2015; Ortega, Calmaestra et al., 2008; Ortega, Elipe, Mora-Merchán et al., 2009); others above the second lowest possible response (e.g., if a scale ranged from 0 to 5, answers 0 and 1 would be classified as *uninvolved*; 2, 3, 4, and 5 would be classified as *involved*; 2 and 3 *moderate*; 4 and 5 *severe*) (Buelga et al., 2010; Buelga, Cava et al., 2015; Buelga & Pons, 2012) or using a dichotomous yes/no answer (Giménez-Gualdo et al., 2015). These cut-off points were even more complex in case of scales. In most of the studies, prevalence was calculated taking into account affirmative answers to any item and not to the total scores on the scale. Children were classified as uninvolved in they answered “never” to all the items and the rest was considered to be involved (Álvarez-García, Núñez et al., 2015; Buelga, Cava et al., 2015; Buelga, Iranzo et al., 2015; Calvete et al., 2010; Garaigordobil & Martínez-Valderrey, 2015). There was a study that used a cluster analysis instead of a cut-off point (Gámez-Guadix et al., 2015), studies that did not specify a cut-off point (Cuadrado-Gordillo & Fernández-Antelo, 2014; León del Barco et al., 2012), or overall prevalence (Álvarez-García, Núñez, Álvarez-Pérez et al., 2011). There were also studies that classified students as involved when their response was above the second lowest possible point in at least one item (e.g., if a scale ranged from 0 to 4, students who answered 2, 3, or 4 in at least one item would be classified as *involved*; 0 and 1 *uninvolved*) (Del Rey et al., 2015; Navarro et al., 2012; Navarro et al., 2013). Finally, there was also a study that required the highest possible answer in at least one item for classifying a participant as involved (e.g., if a scale ranged from 0 to 4, students who answered 4 in at least one item would be classified as *involved*) (Navarro et al., 2015). Two of the studies using scales also differentiated the moderate and the severe involvement, based on the percentile 95 (Álvarez-García, Núñez et al., 2015) and one standard deviation above the mean (Buelga, Iranzo et al., 2015).

#### *The Prevalence of Cybervictimization*

Cyberbullying victimization was evaluated by means of scales and one-item global questions. Among the scales, the mean prevalence was of 26.65% ( $SD=23.23$ ), the median prevalence was of 24.4% and the range was from 78.31% (including occasional - 72.74% and frequent - 5.57%; Álvarez-García, Núñez et al., 2015) to 4.6% (Navarro et al., 2015). In almost all the cases (except Gámez-Guadix et al., 2015, where the prevalence was based on cluster

analysis), the prevalence was calculated taking into account answers above the established cut-off point to at least one item from the scale (independently of the total number of the items). The highest prevalence was found among the studies that used a cut-off in which an answer different from “never” to any item would be classified as victims (including occasional and frequent) - 78.31% (Álvarez-García, Núñez et al., 2015), 30.1% (Calvete et al., 2010), 30.2% (Garaigordobil, 2015a). The prevalence was lower when the cut-off point was established in the middle of the scale (i.e., on a 5-point Likert scale ranging from 1 to 5, the cut-off is having answered 3 in any item) - 4.65% (Del Rey et al., 2015), 24.2% (Navarro et al., 2012), 24.6% (Navarro et al., 2013). Finally, the prevalence of 4.6% was found in a study that uses the highest possible answer to at least one item as the cut-off point (Navarro et al., 2015). It is worth mentioning that besides the cut-off scores, there are also other important differences among the studies. For example, the studies conducted by Navarro et al. (2013, 2014, 2015) focused on primary education whereas the rest focused on adolescents. There were also different timeframes for bullying (e.g., Calvete et al., 2010 asked about having “ever” been victimized while Del Rey et al., 2015 asked about the past two months). In the study conducted by Álvarez-García, Núñez et al. (2015), victims were further classified into occasional (72.74%) and frequent (5.57%).

One-item evaluations yielded different results with mean prevalence of 10.70% ( $SD=8.26$ ), median prevalence of 7.98%, ranging from 26.8% (Buelga et al., 2010) to 5% (García-Moya et al., 2014). Also in this case, the highest prevalence was reported when students were classified as victims when their answer was different from “never” - 10.1% (García-Fernández et al., 2015), 10.8% (Ortega, Calmaestra et al., 2008), 5.85% (Ortega, Elipe, Mora-Merchán et al., 2009); although the highest prevalence (26.8%) was reported in a study that used the second lowest possible score as a cut-off point (i.e., students who answered never and once were classified as non-victims and students who answered 2 or 3 times or more as victims, Buelga et al., 2010). It is worth mentioning that most of these studies classified victims into occasional and severe.

#### *The Prevalence of Cyberbullying Perpetration*

Perpetration was also measured by means of one-item or multi-item instruments. The mean prevalence using multi-item scale was of 24.64% ( $SD=24.35$ ) and the median prevalence of 15.5%, ranging from 56.5% (Buelga, Iranzo et al., 2015) to 2% (Navarro et al., 2015). All the cut-off scores were established taking into account an answer given by a participant in at least one of the items (independently of the number of the items in the scale). Again, the highest prevalence was found when participants were classified as involved after giving at least one answer different from “never” - 56.5% (46% occasional and 10.5% severe) (Buelga, Iranzo et al., 2015), 44.1% (Calvete et al., 2010), 15.8% (Garaigordobil, 2015a) and the prevalence was lower when the cut-off was established in the middle of the scale - 5.1% (Del Rey et al., 2015) or requiring the highest possible answer - 2% (Navarro et al., 2013).

One-item evaluations yielded different results also in this case, with the mean prevalence of perpetration of 14.06% ( $SD=13.82$ ), median perpetration of 6.9%, ranging from 32% (Buelga, Cava et al., 2015) to 1.37% (Giménez-Gualdo et al., 2015). The lowest prevalence was reported with a dichotomous question about the involvement (Giménez-Gualdo et al., 2015), and the highest prevalence in studies that used the second lowest possible score as a cut-off point (i.e., students who answered never and once were classified as non-victims and students who answered 2 or 3 times or more as victims) - 32% in Buelga, Cava et al., 2015 and 31.4% in Buelga and Pons (2012). In many studies, victims were classified as occasional and severe.

### *The Prevalence of the Bully/Victim Status and By-standing*

Prevalence of by-standing was reported in two studies. [Álvarez-García, Núñez, Álvarez-Pérez et al. \(2011\)](#) studied the prevalence of by-standing in violence through the information and communication technologies (not labeled as cyberbullying) finding that different behaviors were witnessed by 35.4% to 51.9% of the participants (no overall prevalence). [Garaigordobil \(2015a\)](#) reported that 65.1% of the participants responded having witnessed at least one or more behaviors included in a multi-item scale.

Three studies focused on the bully/victim status evaluated on a scale. [Del Rey et al. \(2015\)](#) found a prevalence of 2.09% using a cut-off established in the middle of the scale in at least one of the items for both roles (i.e., in a 5-point Likert scale ranging from 1 to 5, having answered at least 3 to at least one item on victimization and at least one on perpetration). [Cuadrado-Gordillo and Fernández-Antelo \(2014\)](#) reported 3.22% of bully/victims but did not specify a cut-off point. [Gámez-Guadix et al. \(2015\)](#) reported a prevalence of 46.61% of bully/victims in time 1 of their longitudinal study, based on a cluster analysis.

Also three studies reported the prevalence of the bully/victim status based on one-item evaluation. [García-Fernández et al. \(2015\)](#) found 3.6% based on answers different from “never” to one item on perpetration and one on victimization. [Giménez-Gualdo et al. \(2015\)](#) found 1.31% based on a dichotomous yes/no answer and [Ortega, Calmaestra et al. \(2008\)](#) found 8.4% also based on answers different from “never”.

### **Discussion**

The current systematic review provides a global vision of the studies on the prevalence of cyberbullying in Spain considering different methodologies and evaluation strategies. The results of this study show that the field is developing very quickly and that the number of articles published on the topic is increasing. Many studies with representative samples have been conducted in different regions of Spain and a lot of knowledge has already been gained. At the same time, there are many issues that still need to be addressed.

The results of this systematic review show that most of the Spanish studies were conducted with adolescents from compulsory secondary education. Given that this phenomenon can be present in different age groups ([Zych et al., 2015b](#)), it could be interesting to increase the number of studies in primary education and upper secondary education. Age trends in case of cyberbullying could be especially important taking into account that older adolescents would probably be more skillful in using the electronic devices. This could lead to more sophisticated attacks or, on the other hand, increased online security or skills to block it. At the same time, some geographic areas are more represented than others and, therefore, it could be interesting to conduct new research in the regions where this kind of violence has not yet been studied.

Many of the definitions of cyberbullying included in the reviewed studies are based on [Smith et al. \(2008\)](#), who defined the phenomenon as intentional and repeated aggression, perpetrated by individuals or groups on victims who cannot easily defend themselves. The definition proposed by [Tokunaga \(2010\)](#) according to which cyberbullying is a repeated, harmful, and intentional aggression through the electronic devices with imbalance of power between the perpetrator and the victim is also included in many Spanish studies. This aspect is mostly consistent among the articles included and there is certain agreement in the field. These definitions are partly consistent with the definitions of bullying (e.g., the criteria of repetition, imbalance of power, or intent) but perpetrated in a different context (i.e., cyberspace) and some authors have even explicitly stated in the definition that there are criteria

shared with bullying ([Elipse et al., 2012](#); [García-Fernández et al., 2015](#)). Most of the definitions included also specific criteria such as possible anonymity or perpetration at school and outside of school. Although most of the definitions include the criterion of repetition, this issue is still under discussion, taking into account that even one act, if perpetrated through the electronic devices, can spread, be forwarded, and multiply even without any further intervention of the perpetrator ([Menesini et al., 2012](#)).

All the studies used self-reports to evaluate cyberbullying. Self-reports are very useful, taking into account the subjective nature of some characteristics of cyberbullying, such as the intent to harm or the perception of damage. Other-reports could be complimentary and could help in detecting cases that would not be reported, for example, due to the social desirability, providing also information from different viewpoints. Thus, future research could include also other-reports. Methodologies varied greatly among the studies and big differences were found in relation to the timeframes, use of one-item or multi-item evaluations and cut-off points. Timeframes can be very important from at least two different points of views. On one hand, the advantage of using instruments with short timeframes (e.g., the past two or three months) is that the changing nature of the phenomenon can be described in the population. Moreover, if programs against cyberbullying are conducted, short timeframes make it possible to evaluate if there was a change after the implementation of the intervention. If the timeframe is long (e.g., “ever” in your life), a change after the intervention program cannot be measured but, on the other hand, the instrument could be useful to describe prevalence during a lifetime. In this case, it would be expected that the prevalence would be higher in older participants since the time period included would be longer (e.g., a person who is 8 years old could answer taking into account these 8 years whereas a person who is 16 would include the same 8 years and 8 more years in the timeframe “ever”) and, therefore, the age groups could not be compared. It could also be interesting to consider that an act of face-to-face bullying, although repeated, is usually relatively short in time (e.g., insulting, name-calling, pushing, hitting, etc. usually last minutes). On the other hand, each aggressive act can be very long-lasting when perpetrated through the electronic devices (e.g., a comment posted online or a photograph uploaded on a website can last for years). Thus, a suitable timeframe should be chosen depending on the research questions and, if studies are to be compared, similar timeframes should be used.

Probably the most interesting finding of this systematic review is how the cut-off points in relation to the use of one-item vs. multi-item evaluations influence the prevalence of the phenomenon reported by each study. The results show that the prevalence reported in the multi-item evaluations is about twice as high as the prevalence reported in the one-item evaluations. Measuring cyberbullying with a single item has been criticized, taking into account the fact that it is a very complex phenomenon and that the multi-item evaluation usually leads to better validity and reliability ([Menesini & Nocentini, 2009](#)). Thus, summative rating scales are probably the most popular evaluation tool in modern psychological and educational research. According to [Spector \(1992\)](#), these scales are quantitative, contain multiple items, have no right or wrong answers, and these items are added up to obtain the final score. There are two test theories that guided the development of rating scales, namely the classical test theory and the item response theory. From the classical test theory, the result obtained by summation is believed to include true score and error. The error is assumed to have an average of 0 but several indicators need to be added up to be as close to this average as possible ([Spector, 1992](#)). For example, it is assumed that a person who does not understand a question, is distracted, or simply marks the wrong answer in one item is not going to make the same mistake in other items

<p>Example 1</p> <p>One-item evaluation: after a definition of cyberbullying a participant is asked if this has happened to them:</p> <p>0 never 1 once or twice 2 once a month 3 once a week 4 every day</p>
<p>Example 2</p> <p>Multi-item evaluation with three items:</p> <p>1. Somebody uploaded my personal information without permission</p> <p>0 never 1 once or twice 2 once a month 3 once a week 4 every day</p> <p>2. Somebody said something bad about me on the Internet</p> <p>0 never 1 once or twice 2 once a month 3 once a week 4 every day</p> <p>3. I was threatened through the Internet</p> <p>0 never 1 once or twice 2 once a month 3 once a week 4 every day</p>

**Figure 2.** Examples of two Possible Evaluations of Cyberbullying.

and, therefore, the error is going to be smaller when the score is derived from multiple items. Most of the psychological testing in Spain is based on the classical test theory (Muñiz, 2010). Figure 2 includes two examples which can help in the further discussion of the topic.

Taking into account these methodological concerns in relation to the results of the current study, each form of evaluation has its advantages and disadvantages. One-item evaluation usually includes a definition of cyberbullying and a question in which participants are asked if this happened to them and if so, how frequently this happened (see example 1, Figure 2). With this methodology, the concept can be clearly explained, so it can be argued that a participant would understand it as a whole. At the same time, this can be shorter and more efficient than answering to multiple items. On the other hand, the reliability is lower than in rating scales (Spector, 2013) and the possible error is higher. Taking into account the example 1 (Figure 2), if a cut-off score is established in “once a month” and a participant answers 3 instead of 1 by mistake and there is only one item, this error will not be averaged with the answers in other indicators and, therefore, they would be classified as “involved”. Nevertheless, to increase the reliability, scores could be summed up or averaged if a rating multiple-item scale is used. Considering the example 2 in Figure 2, if the cut-off is still established in “once a month” and a participant pretended to answer 1 to all the 3 items but, by mistake, marked 3 in the item 2, the mean score would still be below the cut-off point (in this example, it would be  $(1 + 3 + 1)/3 = 1.66$ ). The results of this study show that this kind of summation is uncommon in the studies on cyberbullying and the prevalence is calculated taking into account a response in any item from the scale. Thus, the error is not averaged (e.g., again, if a participant answers a 3 instead of 1 by mistake in the item 2 and 1 in the items 1 and 3, this error will not be averaged and they would be classified as “involved”). From the conceptual point of view, relying on any item to establish prevalence makes it very difficult to differentiate between cyberbullying and cyberaggression (in the example 2, if a cut-off point is established in 1, a participant who reports that somebody said something bad about them on the Internet once or twice would be considered as involved). Thus, calculating an average score rather than relying on any item from the scale could increase the reliability and could be more specific from the conceptual point of view. Nevertheless, this solution would also have important disadvantages, since a person who is suffering only one form of cyberbullying (e.g., being insulted on the Internet every day but without perceiving being threatened or having personal information uploaded) would be classified as “uninvolved” which would not fit with most of the definitions of

cyberbullying either. Finally, if a cut-off point is established in “1 in any item” (example 2, Figure 2) it is difficult to differentiate cyberbullying from a more general concept such as cyberaggression but if it is established in “2 in any item”, a participant who, for example, answers 2 in the item 2 and 0 in the items 1 and 2 would be classified as “involved” (total score of 2), whereas a participant who would answer 1 in the items 1, 2 and 3 would be classified as “uninvolved” (with the total score of 3). In this case, if the total score is used to study relationships (e.g., correlations with variables such as self-esteem, emotional intelligence, etc.), the “uninvolved” participant with the total score of 3 would be introduced in the analysis as “more involved” than the “involved” participants with the total score of 2. Thus, this solution would also have advantages and disadvantages, depending on the research question.

Taking into account the advantages and the disadvantages of using one-item evaluation and also multiple-item rating scales with different possible cut-off scores, it is very difficult to make recommendations regarding the evaluation of cyberbullying and its prevalence. It is difficult to tell if repetition or multiple behaviors are required criteria. A study conducted with adolescents from six European countries shows that the criterion of repetition is not given much importance in cyberbullying, suggesting that even one act can persist in the electronic media without necessarily being repeated by the perpetrator (Menesini et al., 2012). In case of bullying, reporting an act two or three times usually means having been victimized two or three times (e.g., having been insulted twice) whereas in case of cyberbullying, reporting an act two or three times might mean an immense number of times of suffering victimization (e.g., a picture uploaded only once can be seen thousands of even millions of times).

One possible option is, at this stage, not to study cyberbullying and focus on a wider concept of cyberaggression instead. Bauman et al. (2012) suggest that the concept of cyberbullying has not been defined and tested yet and, therefore, it would be useful to focus on cyberaggression rather than cyberbullying. The authors also conclude that, by now, the measures used to study the phenomenon do not evaluate cyberbullying anyway, they rather study cyberaggression in general. On the other hand, Smith, del Barrio, and Tokunaga (2013) recognize that the difference between cyberaggression and cyberbullying seems to be less clear than the difference between aggression and bullying. Nevertheless, these authors suggest distinguishing the phenomenon from the broader concept of cyberaggression. According to Smith et al. (2013), cyberbullying is a specific form of cyberaggression characterized by intent to harm (shared with cyberaggression), a specific target of this aggression and imbalance of power. Criteria related to the morality and proactive vs. reactive aggression could also be considered in the future. Given the fact that the research in the field is still in its early stage, it can be concluded that the Spanish studies on the topic advanced a lot of knowledge and that they have been very fruitful throughout the recent years. At the same time, each methodology has its advantages and disadvantages and should be carefully chosen depending on the research questions that are to be answered. It could be also beneficial to advance in the establishment of common criteria and new methodologies that could help to overcome these difficulties. One promising line could be the application of the item response theory, which takes into account the person's proficiency or magnitude of a characteristic combined with the difficulty or probability to give a certain answer to each item (Muñiz, 1997).

### Conflict of Interest

The authors of this article declare no conflict of interest.

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## Appendix

### Studies excluded from the systematic review

Study	Rationale for exclusion
Alfaro González et al. (2015)	No prevalence of cyberbullying is reported
Avilés, Irurtia, García-López, and Caballo (2011)	Theoretical article
Borrajo, Gámez-Guadix, Pereda, and Calvete (2015)	Adult participants
Buelga, Cava, and Musitu (2010)	No prevalence of cyberbullying is reported
Caballo, Calderero, Arias, Salazar, and Irurtia (2012)	No prevalence of cyberbullying is reported
Casas, Del Rey, and Ortega-Ruiz (2013)	No prevalence of cyberbullying is reported
Catalina García, López de Ayala López, and García Jiménez (2014)	Cyberbullying was not specifically measured
Conversi (2012)	Theoretical article
De la Caba Collado and López Atxurra (2013a)	No prevalence of cyberbullying is reported
De la Caba Collado and López Atxurra (2013b)	No prevalence of cyberbullying is reported
Del Rey, Casas, and Ortega (2012)	No prevalence of cyberbullying is reported
Del Rey, Elipe, and Ortega-Ruiz (2012)	No prevalence of cyberbullying is reported
Durán and Martínez-Pecino (2015)	Adult participants
Elipe, Mora-Merchán, Ortega-Ruiz, and Casas (2015)	Adult participants
Fernández-Montalvo, Penalva, and Irazabal (2015)	Cyberbullying was not specifically measured
Gámez-Guadix, Villa-George, and Calvete (2014)	Participants are not Spanish (Mexican)
Garaigordobil (2011)	Theoretical article
Garaigordobil and Martínez-Valderrey (2014)	No prevalence of cyberbullying is reported
Garaigordobil and Martínez-Valderrey (2015a)	No prevalence of cyberbullying is reported
Garaigordobil and Martínez-Valderrey (2015b)	No prevalence of cyberbullying is reported
Isasi-Andrieu, López-Carrera, and Ruiz-Ibañez (2012)	No prevalence of cyberbullying is reported
Martínez (2013)	Theoretical article
Menesini et al. (2012)	No prevalence of cyberbullying is reported
Nocentini et al. (2010)	No prevalence of cyberbullying is reported
Ortega-Ruiz, Casas, and Del Rey (2014)	No prevalence of cyberbullying is reported
Ortega-Ruiz, Del Rey, and Casas (2012)	No prevalence of cyberbullying is reported
Ortega-Ruiz and Núñez (2012)	Theoretical article
Paniagua Repetto (2013)	Theoretical article
Salmerón Ruiz, Blanco Sánchez, and Rivero (2014)	Theoretical article
Schultze-Krumbholz et al. (2015)	No prevalence of cyberbullying is reported (only for the international sample)
Smith et al. (2012)	No prevalence of cyberbullying is reported
Tejedor-Calvo and Pulido-Rodríguez (2012)	Theoretical article
Viejo and Ortega-Ruiz (2015)	Theoretical article
Zych, Ortega-Ruiz, and Del Rey (2015a)	Theoretical article
Zych, Ortega-Ruiz, and Del Rey (2015b)	Theoretical article

Alfaro González, M., Vázquez Fernández, M. E., Fierro Urturi, A., Herrero Bregón, B., Muñoz Moreno, M. F., & Rodríguez Molinero, L. (2015). Use and risks of information and communication technologies in the adolescents from 13 to 18 years. *Acta Pediátrica Española*, 73, 146-151.

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