Dimensions and measures of cyber dating violence in adolescents: A systematic review

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ABSTRACT

The term 'cyber dating violence' refers to a new form of interpersonal violence in romantic relationships brought about via new technologies. In recent years, despite a large number of instruments developed to measure this phenomenon by the scientific community, there are no systematic reviews that specifically compare measures focused on the adolescent population. The current study aimed to conduct a systematic review on measures and definitions of cyber dating violence in adolescence: in particular, we examined the dimensions identified, the characteristics of the population, and the psychometric properties of those measures developed between 2010 and early 2019. The results yielded up to 26 different measures, revealing an apparent lack of inter-measure coherence. Although the observed theoretical dimensions differ among studies, cyber dating violence comes across as a multidimensional construct, encompassing behaviors driven by sexual and nonsexual content, and with control/monitoring reported as the most frequently assessed dimension. However, analyses focused on measure validation remain scarce. The results highlight essential information when it comes to an understanding of cyber dating violence and the need to develop and evaluate instruments for measuring this phenomenon in all its complexity.

1. Introduction

Digital media has emerged as a new channel through which to engage in and experience violent behaviors in romantic relationships. According to a recent review, this form of violence in dating relationships has received several labels, such as *electronic dating violence, cyber aggression, online dating abuse, digital dating abuse*, and *cyber dating abuse*, the latter being the most widely used term (Flach & Deslandes, 2017). The terms aggression/violence and abuse are used interchangeably, but they are not the same. Thus, as noted by Geffner (2016), the term abuse implies not an isolated behavior, but the context, motivation, and consequences for victims. However, these characteristics are not addressed in the available measures, which are more focused on the analysis of specific behaviors. Defining the phenomenon represents an ongoing challenge for researchers, and it represents a clear need for further studies and understanding. According to the objectives of the present systematic review, we will use the term *cyber dating violence*, analyzing violent behaviors within adolescent romantic relationships, which occurs via technological devices and the Internet. We are dealing with a new expression of intimate partner violence that attempts to inflict harm on the romantic partner and to affect the victim's mental health (Flach & Deslandes, 2017). Cyber dating violence shares some similarities with face-to-face dating violence as both contexts give rise to different types of psychological aggressions such as insults, demeans, threats, monitoring, emotional manipulation and controlling partner's social relationships (Foshee, 1996; Williams et al., 2012). However, the online interaction has particular characteristics that promote and encourage the use of specific coercive tactics like control and monitoring tactics (Stephenson et al., 2018). Moreover, the online context facilities new opportunities for attacking the partner (Stephenson et al., 2018) as is the case of impersonation (Bennett et al., 2011). The physical proximity with the victim loses its meaning in the online context, so the aggression could surface at any time. Also, the victim's reaction is not so obvious for the aggressor who can minimize the consequences of their acts (Muñoz-

Fernández & Sánchez-Jiménez, 2020). Finally, the potential audience increases in the online context, making it a more humiliating experience for victims (Stonard, 2020) while the aggressor may feel immune to carry out some coercive tactics under anonymity, such as monitoring (Utz & Beukeboom, 2011). Therefore, cyber dating violence would not only encompass the online translation of face-to-face psychological aggression.

In a relatively short period, research on this topic has resulted in a large number of instruments aimed at determining the prevalence of this phenomenon in youth and adults. However, the different definitions of the phenomenon and measures developed have made it difficult to identify its dimensions (Brown & Hegarty, 2018). That said, some authors (Stonard et al., 2014) have identified up to six types of abusive cyber behaviors (psychological/emotional violence; threatening comments; embarrassing/humiliating behaviors; control through harassment or excessive contact; sexual harassment or coercion; and monitoring or controlling), whereas others have not drawn to similar conclusions (Brown & Hegarty, 2018).

Furthermore, most cyber dating violence measures have been implemented or tested on the adult population, transferring the results to the adolescent population (Brown & Hegarty, 2018; Flach & Deslandes, 2017; Gámez-Guadix et al., 2018). However, dating relationships in adolescence present particular characteristics, which are unique concerning this developmental period. The corresponding literature has described how adolescent dating relationships differ from adult ones in terms of commitment and consolidation of conflict resolution strategies (Collins et al., 2009), as well as in terms of dating violence prevalence. Adolescents report higher rates of involvement than adults and young people in both traditional forms (Fernández-González et al., 2014) and online forms of dating violence (Ybarra et al., 2017). Besides, this is often reported as a risk factor for violence among adult couples (Capaldi et al., 2012). Despite these differences, to date, any systematic review has been focused on the exploration of instruments measuring cyber dating violence in adolescents. Additionally, most of the instruments have been developed and tested in young adults, while the instruments available for the adolescent population are still scarce. Thus, looking to address this gap in the research, we systematically examined the cyber dating violence measures developed for the adolescent population presented in the scientific literature (precisely, research articles and theses). Particularly, the objectives of our systematic review were threefold. First, to analyze the theoretical dimensions of cyber dating violence underlying the various instruments; second, to identify the characteristics of the population for which these instruments were created and subsequently administered; and third, to ascertain the psychometric properties of these measures.

2. Method

2.1. Search strategy

Five electronic databases were reviewed: PsycINFO, Web of Science, Scopus, Medline, and PubMed. The keywords referred to the medium (Online, Cyber, Electronic, Digital, Virtual, ICT); the romantic relationship (Dating, Intimate, Partner); and the violent behavior (Aggression, Victimization, Abuse, Violence). Two keywords included the romantic relationship as well as the behavioral dimension (IPV, Violent Romantic Relationship). Combinations of these conditions were carried out, filtering by Title, Abstract, and Keywords for PsycINFO, Web of Science, Scopus, and Medline; and Title and Abstract for PubMed.

2.2. Inclusion and exclusion criteria

Due to the novelty of this topic and the lack of publications before 2010 (Flach & Deslandes, 2017), the systematic search was restricted to research articles and doctoral theses published from 2010 to March 2019.

Thus, the inclusion criteria referred to (1) studies published as of 2010; (2) research articles and doctoral theses; (3) studies on cyber dating violence using a quantitative measuring instrument; (4) studies on the adolescent population and/or whose sample mainly comprised adolescents (data collected at high schools, with a maximum mean age of 18–19 years or slightly higher); and (5) studies published in English or Spanish.

The exclusion criteria referred to (1) studies published before 2010; (2) documents other than research articles and doctoral theses; (3) studies not including cyber dating violence measures; (4) studies on a mostly adult population; and (5) studies written in languages other than English and Spanish.

2.3. Data coding

The first objective was to analyze coding the theoretical dimensions, their definitions, and items' content. To fulfill the second objective, we coded the countries were the measures were administered, and the characteristics of the sample in terms of race/ethnicity; age (range and mean); sex; and type of sample (no-risk samples, at-risk, or clinical population). We defined "at-risk samples" those samples considered with a high probability of reporting cyber dating violence – i.e. participants who had a history of family violence, participant whose mothers were victims of domestic violence or with a prior history of dating violence involvement – and "no-risk samples" those samples from general population. Regarding the third objective, namely an analysis of the instruments' psychometric properties. Specifically, the number of items, the internal consistency, as well as the presence of exploratory or confirmatory factor analyses. The names of the new instruments were reported, and the references of the original ones in case of adaptation. Two independent evaluators were involved in gathering this information, reaching an according degree of 100%.

3. Results

The searches yielded 6352 documents, which reduced to 1761 following the automatic removal of duplicates using EndNote software. Consequently, 58 of 1761 manually analyzed abstracts fulfilled the inclusion/exclusion criteria, which led to a complete reading of these documents. The 1703 records were excluded for different reasons: publication year ($n = 216$); no articles or thesis ($n = 108$); no cyber dating violence measure ($n = 1307$); and adult population ($n = 72$).

After reading the 58 files, 16 were eliminated: documents that were not a thesis or research article ($n = 1$); no quantitative measure of cyber dating violence included ($n = 9$); the participants were adults ($n = 6$). Finally, 42 documents (articles or theses) were included in the present systematic review (Fig. 1).

The inter-rater assessment was performed to check the decision of the inclusion/exclusion criteria. Following the removal of duplicates, three independent evaluators reviewed 30% of the documents, and strong reliability was reported with Cohen's kappa coefficients higher than 0.70 across all comparisons. Specifically, Kappa scores of 0.707, 0.781, and 0.782 were obtained. The main discrepancies between the two raters were due to the difficulty in some abstracts, to ascertain the participants' age, or to identify the use of technology to exert violence. These discrepancies were resolved during the second round of evaluation.

The results were described by objective: (1) to analyze the theoretical dimensions measured through the instruments; (2) to identify the characteristics of the population where the instruments were developed or administered; and (3) to identify the psychometric properties of the measures included in the review.

3.1. Theoretical dimensions

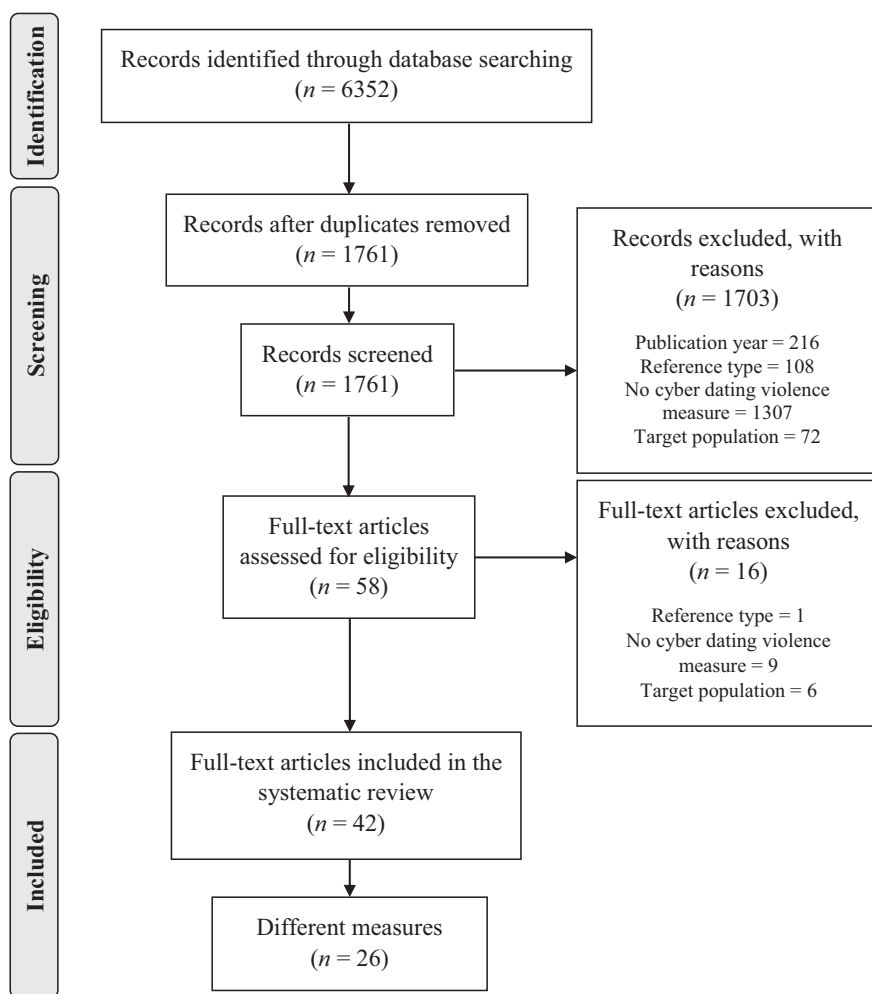We found 26 instruments focused exclusively on cyber dating

Fig. 1. Documents selection diagram.

violence among young partners in our dataset.

Accurately, 35% of the instruments reported a one-dimensional definition of cyber dating violence (*n* = 9). The remaining 65% (*n* = 17) took a multidimensional view, identifying two or more (Zweig et al., 2014) dimensions of cyber dating violence (see Table 1).

These multi-dimension instruments differ in terms of the number of identified dimensions, the labels used, and their definitions, reflecting a lack of consensus when it comes to conceptualizing cyber violence in young partners. In general, according to the nature of cyber dating violence, the studies seem to distinguish between two macro-dimensions. The first focuses on nonsexual cyber aggressive behaviors, whereas the second macro-category comprises sexual cyber violence (Dick et al., 2014; Sánchez-Jiménez et al., 2018; Zweig et al., 2014).

Other studies have conceptualized different dimensions of nonsexual cyber dating violence. The first dimension defines the verbal and emotional forms of cyber dating violence (named as cyber emotional from now), understood as traditional forms of face-to-face verbal/emotional violence adapted to the online context. Behaviors under this dimension include insults, threats, humiliations and blackmails. These cyber emotional forms have received several names, such as emotional abuse (Barter et al., 2017; Stonard, 2019); emitted violence (Muñiz, 2017); psychological violence (Morelli et al., 2018); cyber-harassment (Cava & Buelga, 2018); and harassment (Smith-Darden et al., 2017). Other authors have labeled these cyber emotional forms as direct acts of aggression (Quesada et al., 2018; Reed et al., 2017), defining these cyber behaviors as tactics to directly harm the victim through humiliation, threats, insults and taunting, privately or publicly. Some examples of

this cyber emotional violence would be the following: *"Have any of your partners ever put you down or sent you any nasty messages?"* (Barter et al., 2017); *"Sent a mean or hurtful PRIVATE message"*/*"Posted a mean or hurtful PUBLIC message"* (Reed et al., 2017); and, *"I told my boyfriend/girlfriend that, if they break up with me, I'll say or post personal things about him/her on social networking sites"* (Cava & Buelga, 2018).

Relational violence is another dimension covering nonsexual cyber content. These cyber relational forms would include acts that cause harm to the victim by manipulating the couple's relationship (Wright, 2015); relationships with friends (Barter et al., 2017); and, in general, the victim's social network (Morelli et al., 2018). For a similar dimension, other authors have used the term isolation (Barter et al., 2017). The behaviors describing this cyber relational violence refer to denying or withholding affection (*"I ignore my romantic partner when he/she has hurt my feelings in some way online or through text messages"*, Wright, 2015); impersonation or use of personal account to manipulate partners' friendships (*"Have any of your partners used mobile phones or social networking sites to stop your friends liking you, for example, pretending to be you and sending nasty messages to your friends?"*, Barter et al., 2017); and spreading rumors or humiliating multimedia content (*"I spread rumors about him/her via SMS/mail/Facebook"*, Morelli et al., 2018), among others.

Intentionally provoked jealousy in the online context have received some attention by researchers, although there is no consensus about its consideration as a specific dimension (Sánchez-Jiménez et al., 2017; e. g., *"I get jealous when my partner posts provocative photos on their social network profile"*), as a form of cyber relational dimension (*"I try to make

Table 1
Measures of cyber dating violence.

One-dimensional instruments

Measure			Psychometric properties				Participants			
References	Measure name	Adaptation of sources	Items	Internal consistency	Validation		Country	Race/Ethnicity	Age % of girls	Population type
					EFA	CFA				
Cutbush (2015) Cutbush and Williams (2016) Cutbush et al. (2018)	–	Finkelhor et al. (2000) Picard (2007)	8	Yes	Yes	Yes	USA	White 26–28% Black/African American 33–34% Hispanic/Latino(a) 24–26.5% Other or Multiple races 12.5–15%	7th grade 50.4%	–
Foshee et al. (2015) Agnew-Brune (2016) Foshee et al. (2016)	–	Picard (2007)	4	–	–	–	USA	White 26.9% Black 54.8% Other 18.3%	12–15 64.06%	Risk
Domínguez-Mora et al. (2016)	–	–	6	–	–	–	Mexico	–	12–17 54%	–
Han and Margolin (2016)	How Friends Treat Each Other (Bennett et al., 2011)	Bennett et al. (2011)	21	Yes	–	–	USA	Caucasian 57.6% Black/African American 17.6% Hispanic/Latino(a) 35.2% Asian/Pacific Islander 5.6% Multiple ethnicities 19.2%	9–13 46.4%	–
Temple et al. (2016) Peskin et al. (2017) Van Ouytsel, Torres, et al. (2017) Lu et al. (2018)	–	Picard (2007) Zweig et al. (2013)	12	Yes	–	–	USA	White/Caucasian 27.8–30.6% Black/African American 24.7–30% Hispanic 31.9–61% Asian/Pacific Islander 3.1% Other 8–12.8%	M = 12.4–19.1 44.2%– 63.3%	–
Machimbarrena et al. (2018)	Cyber Dating Abuse Questionnaire (Borrajo et al., 2015)	Borrajo et al. (2015)	11	Yes	–	–	Spain	–	11–21 53.7%	–
Rizzo et al. (2018)	Social Networking and Controlling Behaviors Survey	–	6	Yes	–	–	USA	White 20–25% African American 33–37% Hispanic 48–53% Asian 6% American Indian 6–10%	14–17 100%	Risk
Rodríguez-Domínguez et al. (2018)	–	Buelga and Pons (2012)	10	Yes	–	–	Spain	–	13–20 0%	–
Smith et al. (2018)	Cyber Dating Abuse Questionnaire	Litwiller and Brausch (2013) Stewart et al. (2014)	8	Yes	–	–	Canada	–	14–18 56.4%	–

Multi-dimensional instruments

Measure			Psychometric properties				Participants			
References	Measure name	Adaptation of sources	Items	Internal consistency	Validation		Country	Race/ethnicity	Age % of girls	Population type
					EFA	CFA				
Zweig et al. (2013) Dank et al. (2014) Zweig et al. (2014) Yahner et al. (2015)	–	Griezel (2007) Picard (2007)	16 Nonsexual cyber abuse (12) Sexual cyber abuse (4)	Yes	–	–	USA	White/Caucasian 73.7% Black/African American 5% Hispanic/Latino(a) 8.2% Asian American 2.2% Native American 0.7% Mixed race 10.2%	12–19 52.3%	–
Dick et al. (2014) Miller et al. (2015)	–	Bennett et al. (2011) Ybarra et al. (2007)	7 Nonsexual cyber dating abuse (4) Sexual cyber dating abuse (3)	Yes	Yes	–	USA	White 5.2% African American 27.1% Hispanic/Latino(a) 36.5% Asian 15.5% Native American/Pacific Islander 5.1% Multiracial/Other 10.7%	14–19 76.3%	Clinic

Table 1 (*continued*)

Multi-dimensional instruments

Measure			Psychometric properties				Participants			
References	Measure name	Adaptation of sources	Items	Internal consistency	Validation		Country	Race/ethnicity	Age % of girls	Population type
					EFA	CFA				
Wright (2015)	–	Linder et al. (2002) Wright and Li (2013)	5 Cyber relational aggression (3) Privacy invasion (2)	Yes	–	Yes	USA	Caucasian 70.9% Black/African American 4.1% Latino(a) 16.2% Asian 3.4% Native American 5.4%	M = 17.53 54%	–
Hellevik and Øverlien (2016) Barter et al. (2017)	–	–	6 Emotional abuse (3) Control (1) Surveillance (1) Isolation (1)	Yes	–	–	Bulgaria Cyprus England Italy Norway	–	14–17 50.2% - 82%	–
Reed, Tolman, Ward (2016) Reed et al. (2017) Reed et al. (2018)	–	Bennett et al. (2011) Borrajo et al. (2015) Cosmogirl.com National Campaign to Prevent Teen and Unplanned Pregnancy and CosmoGirl.com (2008) Picard (2007) Reed, Tolman, Ward (2016) Tolman (1999) Zweig et al. (2013)	18 Direct digital aggression (8) Digital monitoring / control (6) Digital sexual coercion (4)	Yes	–	–	USA	White 72.2–75.6% Black 7–8% Hispanic/ Latino(a) 1.3–1.7% Asian/Pacific Islander 4.1–6.7% American Indian/ Alaska Native 0.1% Middle Eastern 3.6–4.7% Multiracial 5.6–5.7%	13–19 54.3%	–
Van Ouytsel et al. (2016) Van Ouytsel, Ponnet, et al. (2017) Van Ouytsel et al. (2018)	Cyber Dating Abuse Questionnaire (Borrajo et al., 2015)	Borrajo et al. (2015)	4 Digital controlling / monitoring behaviors (4)	Yes	–	–	Belgium	–	16–22 71%	–
Johnson (2017)	Electronic Behaviors for Adolescents in Relationships (EBAR)	Borrajo et al. (2015)	13 Threatening / coercive behaviors (6) Monitoring behaviors (7)	Yes	Yes	–	USA	White 44.9% Black/African American 11.3% Asian 1% Native Hawaiian/ Pacific Islander 1.5% American Indian/ Alaskan Native 1.5% Multiracial 15.5% Other 24.3%	13–18 66.3%	–
Muñiz (2017)	Teen dating violence in social networks scale	–	10 Emitted violence (4) Emitted control (6)	Yes	Yes	Yes	Spain	–	15–18 52.4%	–
Sánchez-Jiménez et al. (2017)	Cyberdating Q_A (Sánchez-Jiménez et al., 2015)	Sánchez-Jiménez et al. (2015)	11 Online Jealousy (4) Online Intrusive Behavior (4) Online Control (3)	Yes	–	Yes	Spain Mexico	–	15–21 50%	–
Smith-Darden et al. (2017)	–	Finkelhor et al. (2000)	12 Cyberstalking (−) Harassment (−) Coercive sexting (−)	Yes	–	–	USA	White 60% Black Other students of color	6th & 9th grade 51%	–

Table 1 (*continued*)

Multi-dimensional instruments										
Measure			Psychometric properties				Participants			
References	Measure name	Adaptation of sources	Items	Internal consistency	Validation		Country	Race/ethnicity	Age % of girls	Population type
					EFA	CFA				
Cava and Buelga (2018)	The scale of Cyber-violence in Adolescent Couples (Cib-VPA)	–	10 Cyber-harassment (5) Cyber-control (5)	Yes	Yes	Yes	Spain	–	12–18 56.6%	–
Doucette et al. (2018)	–	Reed et al. (2015)	3 Electronic Intrusiveness (3)	Yes	–	–	USA	White 23.1% Black 32.1%, Hispanic/Latino(a) 53.8% Asian 1.3% American Indian/Alaskan Native 10.3% Multiracial/Other 52.6%	14–17 100%	Risk
Kernsmith et al. (2018)	–	Foshee et al. (1996)	2 Coercive sexting (2)	Yes	–	–	USA	White students 40% Students of color 60%	6th & 9th grade 55%	–
Morelli et al. (2018)	The cyber dating violence inventory	Wolfe et al. (2001)	11 Psychological violence (5) Relational violence (6)	Yes	Yes	Yes	Italy	–	13–22 65.1%	–
Quesada et al. (2018)	Cyber Dating Abuse Questionnaire (Borrajo et al., 2015)	Borrajo et al. (2015)	20 Direct aggression (11) Control (9)	Yes	–	–	Spain	–	14–18 51.7%	–
Sánchez-Jiménez et al. (2018)	Cyber Dating Abuse survey (Zweig et al., 2014)	Zweig et al. (2014)	9 Non-sexual (9)	Yes	–	Yes	Spain	Spanish 96% European 0.8% South American 2.7% African 0.3% Asian 0.2%	11–19 47.7%	–
Stonard (2019)	–	–	12 Controlling manipulation (4) Exploitation (2) Monitoring communication (1) Isolation (3) Intimidation (3) Coercive Pressure (3) Identity devaluation (2) Monitoring whereabouts (1) Emotional abuse (1)	–	Yes	–	England	White British 91%	12–18 57%	–

my romantic partner jealous when I'm mad at him/her online or through text messages", Wright, 2015) or as cyber emotional dimension (e.g., *"I wrote something via SMS/mail/Facebook to make him/her feel jealous"*, Morelli et al., 2018). At this point, some authors argued that emotional and relational forms of cyber violence would form part of direct acts of cyber aggression in comparison to indirect forms of cyber aggression such as control or monitoring behaviors (Reed et al., 2017).

Control or monitoring is the third nonsexual cyber dimension, which represents the most frequently assessed behaviors, as they appear in the majority of the measures considered in the analysis. This type of violence includes various strategies that allow us to know what the partner is doing at all time (monitoring), or decide how to act upon this (control). Some authors have named these behaviors as an invasion of privacy (Wright, 2015), surveillance (Barter et al., 2017), and cyber-stalking (Smith-Darden et al., 2017). Moreover, other authors have differentiated a specific subtype of control/monitoring, that is, repeated attempts to gain access to the other partner following an argument, named as online intrusive behavior (Sánchez-Jiménez et al., 2017). In

contrast, other authors have used this label to refer to monitoring behaviors (Doucette et al., 2018). In sum, there is a consensus about the control strategies, but regarding monitoring tactics, differences appear in terms of terminology and definition. Some examples of control or monitoring behaviors are the follows: *"Had viewed their email messages, messages on their cell phone, or their account on a social networking site without their permission"* (Van Ouytsel et al., 2018); *"Have any of your partners used mobile phones or social networking sites to try and control who you can be friends with or where you can go?"* (Barter et al., 2017); *"Pressured or insisted you give them your passwords"* (Johnson, 2017); and *"When I'm angry, and my partner doesn't respond, I leave many messages on his/her social network wall"* (Sánchez-Jiménez et al., 2017).

Finally, sexual cyber forms include behaviors like sexual cyber (dating) abuse (Dick et al., 2014; Zweig et al., 2014); digital sexual coercion (Reed et al., 2017); and coercive sexting (Kernsmith et al., 2018; Smith-Darden et al., 2017). This type of violence refers to those behaviors of sexual nature displayed under pressure or without the consent of both partners. Specifically, these include pressuring the other

partner to engage in face-to-face or online sexual encounters, sending unwanted or unsolicited sexual content to the partner, obtaining sexual media content following coercion or threats, and posting or forwarding this content to a broader audience. Statements that may fall under this category would include: *"Pressured to sext"* (Reed et al., 2017) and *"pressured to send nude or sexy photos"* (Kernsmith et al., 2018). Lastly, one author (Johnson, 2017) proposed a dimension (Threats/Coercion) comprising sexual and nonsexual cyber behaviors alike.

3.2. Characteristics of the studies' population

3.2.1. Country

The instruments were administered in both North America and Europe. Specifically, in different U.S. states ($n = 13$); Mexico ($n = 2$); Canada ($n = 1$); and European countries such as Spain ($n = 6$); Italy ($n = 2$); England ($n = 2$); Bulgaria ($n = 1$); Cyprus ($n = 1$); Norway ($n = 1$); and Belgium ($n = 1$). Two instruments were administered in different countries (Barter et al., 2017; Sánchez-Jiménez et al., 2017).

3.2.2. Race/ethnicity

The race or ethnicity of the participants were reported in 15 instruments (58%). Thirteen were from USA and two were from Europe (England and Spain). In the United States, the instruments were administered to an ethnically diverse population. Specifically, the races/ethnicities of these participants were: White/Caucasian, Black/African American, Hispanic/Latino(a), Asian, Asian American, Pacific Islander, American Indian, Native American, Alaska Native, Native Hawaiian, Middle Eastern, and other or multiples races. In Europe, the England study described participants as White British (Stonard, 2020). The Spanish work (Sánchez-Jiménez et al., 2018) asked about the birthplace of the participants, being the majority of them Spanish adolescents, while the others were born in different countries of Europe, South America, Africa and Asia. See Table 1 for a detailed information.

3.2.3. Participant characteristics

Most studies applied the instruments to males and females, except for those addressing female at-risk populations (Doucette et al., 2018; Rizzo et al., 2018) and the study by Rodríguez-Domínguez et al. (2018) which assessed aggression in males.

3.2.4. Population type

The majority of instruments were administered in no-risk population ($n = 22$). Two studies worked with clinical population (Dick et al., 2014; Miller et al., 2015) and three instruments were administered to at-risk populations, for example, adolescents whose mothers were victims of domestic violence (Foshee et al., 2015) and girls with a prior history of dating violence involvement (Doucette et al., 2018; Rizzo et al., 2018).

3.3. Measures and psychometric properties

3.3.1. Number of items

The number of items in the different instruments varied according to the number of dimensions included. For those instruments with no identifiable dimension ($n = 9$), the number of items ranged from 4 (Foshee et al., 2015) to 21 (Han & Margolin, 2016). For those instruments reporting identifiable dimensions ($n = 17$), the minimum number of items per dimension was one (Barter et al., 2017; Stonard, 2019), whereas the maximum was 12 (Zweig et al., 2014).

Notably, the number of items varied, given that in cases where aggression and victimization were measured, the number of items increased (Cava & Buelga, 2018; Cutbush et al., 2018; Foshee et al., 2015; Johnson, 2017; Kernsmith et al., 2018; Morelli et al., 2018; Quesada et al., 2018; Reed et al., 2017; Rizzo et al., 2018; Sánchez-Jiménez et al., 2018; Smith et al., 2018; Smith-Darden et al., 2017; Temple et al., 2016; Van Ouytsel et al., 2016; Van Ouytsel et al., 2018; Zweig et al., 2014).

3.3.2. Internal consistency

Internal consistency data were reported in 23 instruments. These were equal to or higher than 0.60 in most cases, except for the cyberstalking aggression scale ($\alpha = 0.47$) in Smith-Darden et al. (2017), whose reliability did not reach adequate levels.

3.3.3. Instrument validity

Three studies reported the structure resulting from the exploratory factor analyses (Dick et al., 2014; Johnson, 2017; Stonard, 2019), and seven instruments presented confirmatory factor analyses. Three of these studies also reported factorial invariance analysis relative to gender (Cutbush & Williams, 2016; Sánchez-Jiménez et al., 2017), culture (Sánchez-Jiménez et al., 2017), and administration time (Sánchez-Jiménez et al., 2018), confirming construct similarity in all cases. Notably, it took until 2018 to present validations for both aggression and victimization scales (Cava & Buelga, 2018; Morelli et al., 2018). Previously, these analyses were only carried out for the aggression scale (Muñiz, 2017; Wright, 2015). Despite the differences between the validated instruments, control/monitoring was the most identified cyber dimension in most cases (Cava & Buelga, 2018; Muñiz, 2017; Sánchez-Jiménez et al., 2017; Wright, 2015).

No one-dimensional measures were validated, as well as those that included a cyber sexual dimension.

It should be noted that validated instruments are not the most widely used. Thus, the instrument developed by Zweig et al. (2014) to be implemented in adolescents is currently the most used or adapted measure in this population (Reed et al., 2017; Sánchez-Jiménez et al., 2018). The Cyber Dating Abuse Questionnaire (Borrajo et al., 2015) is another of the instruments to be highlighted. Although it proved its validity for the adult population, it still needs to be validated in adolescents.

4. Discussion

This systematic review has identified 26 different measures for assessing cyber dating violence in adolescents. The oldest article included in this review was published in 2013 (Zweig et al., 2013), yet an increase in measures focusing on this phenomenon did not occur until 2016. The recent attention on cyber dating violence highlights not only the emergence of a new problem that affects boys and girls in their romantic relationships but also the need for future research to define the construct more clearly and comprehensively. The results obtained in this review support this point of view, giving the high variability surrounding the available instruments in terms of dimensions and definitions.

This variability can be understood by taking into account the intrinsic features of the online medium where violence takes place, which finds itself under continuous development. Thus, enormous advances unfold over relatively short periods in terms of Internet access (almost unlimited), a wide range of ever-increasingly sophisticated devices (smartphones, tablets, computers), and almost daily updates of social networking sites and applications. This continuous change is reflected not only in the development of instruments over time but also in the inclusion of new behaviors, which ultimately represent new opportunities for aggression and victimization.

However, a question remains unclear. Can cyber dating violence be addressed as an online expression of face-to-face psychological aggression, or should it be considered a new form of violence? (Muñoz-Fernández & Sánchez-Jiménez, 2020; Stephenson et al., 2018).

Accepting the first option would justify the exclusion of sexual violence when it comes to developing new instruments or adapting traditional psychological measures to the online context, as in Morelli et al.'s (2018) study. These measures do not consider sexual forms as a part of cyber dating violence, approaching its study as a separate or different phenomenon driven by the online medium's particular characteristics. An example of this would be the study of *sexting*, understood

as the use of new technologies to send messages or sexually explicit multimedia content (Backe et al., 2018), shared without the consent of the partner or under coercion, thus perceived as upsetting (Backe et al., 2018).

A different approach is that shared by other authors (Peskin et al., 2017; Zweig et al., 2014), who claim that while cyber dating violence can be conceptualized as a form of psychological violence, it also presents unique characteristics that set it apart from face-to-face violence, creating a qualitatively different experience (Zweig et al., 2014). Thus, cyber dating violence bears similarities with offline relational and psychological violence (for example, exposing private information about one's partner, exerting control, insults, and threats). However, violence via technologies does not require physical proximity, which means that the victim is always exposed to their partner's aggression, turning it into a more intense and harmful manifestation of violence (Bennett et al., 2011) and as a form of psychological violence unlike the traditional type (Stephenson et al., 2018). An example of this would be isolating behaviors. Not only would these behaviors succeed in isolating the partner from their family network and peers online, but they would also lead to isolation from online activities via controlling the partners' social networking sites. Furthermore, the characteristics of the medium itself lead to new forms of psychological aggression, such as those involving sexual content (Stephenson et al., 2018), which surface in both the public and private domains of the relationship, reaching a wider audience and, in turn, impacting heavily upon the victim.

As such, we are dealing with violent behaviors resulting from access to technological devices and platforms, which, acting as a vehicle for psychological violence (Temple et al., 2016), would exhibit unique characteristics giving rise to a different behavior (Peskin et al., 2017). Authors who continue on this premise include sexual behaviors in their measures of cyber dating violence, either by identifying them as a dimension (Dick et al., 2014; Reed et al., 2017; Smith-Darden et al., 2017; Zweig et al., 2014) or including them as part of a global measure (Peskin et al., 2017; Smith et al., 2018). However, compared to the adult population (Watkins et al., 2018), there is no knowledge of any validated instruments that contain a differentiating sexual factor in adolescents, something on which future studies should pay closer attention.

The differences underlying the conceptualization of cyber dating violence arise from the difficulty in identifying the dimensions of the phenomenon. As demonstrated in this review, we are met with a variety of instruments, ranging from those that evaluate the phenomenon from a one-dimensional approach which include a considerable number of different behaviors (Foshee et al., 2015; Han & Margolin, 2016; Temple et al., 2016), to multidimensional measures (Reed et al., 2017; Zweig et al., 2014) that contain specific dimensions comprising just one item (Barter et al., 2017; Stonard, 2019). Furthermore, although studies have made considerable efforts to identify nonsexual cyber dimensions such as control/monitoring (Cava & Buelga, 2018; Johnson, 2017; Morelli et al., 2018; Muñiz, 2017; Quesada et al., 2018; Reed et al., 2017; Sánchez-Jiménez et al., 2017; Van Ouytsel et al., 2016), cyber behaviors of a sexual nature have been less explored. Those studies that have addressed these cyber sexual behaviors have done so from a macro-dimensional perspective. Thus, they included behaviors associated with coercive sexting as previously mentioned (Kernsmith et al., 2018; Smith-Darden et al., 2017), and the online posting of sexually explicit multimedia content without the consent of the partner, which goes by the term *revenge porn* in the literature (Backe et al., 2018; Franklin, 2014). Therefore, future research should explore whether this sexual macro-dimension can also be divided into subcategories, as would occur with nonsexual forms of online violence.

Although nonsexual cyber dating violence has received more attention, the available instruments have yet to reach a unanimous agreement on the dimensions to be covered and the corresponding items. The reasons behind these discrepancies can partly be explained by the high number of face-to-face instruments adapted to assess cyber dating violence. Thus, for the authors (Morelli et al., 2018) who adapted Wolfe

et al.'s (2001) Conflict in Adolescent Dating Relationships Inventory (CADRI) to the online context, jealousy falls within the emotional cyber dimension. However, other works (Ellis et al., 2009; Linder et al., 2002) share the view that relational violence manipulates and harms the romantic relationship, meaning that in-person acts of jealousy would also come under this dimension. The authors who based their work on this premise (Wright, 2015) included online jealousy in the cyber relational dimension.

Regarding the third and final objective of this review, few studies offered an analysis of the validity of the developed scales, and, to a lesser degree, about their factorial invariance across different populations. Each validated instrument focused on two dimensions of cyber dating violence, albeit with specific differences. As such, the control/monitoring component promises to be a robust dimension as it is identified by several studies (Cava & Buelga, 2018; Muñiz, 2017; Wright, 2015).

Only two instruments (Cava & Buelga, 2018; Morelli et al., 2018) assessed both aggression and victimization, meaning that to date, we have very little information about violence perpetrated and received by the same participants and under the same behaviors (Brown & Hegarty, 2018).

To summarize, there is a clear need for further research that attempts to define the dimensions which encompass cyber dating violence, in order to develop robust and valid instruments that enable us to identify and compare the prevalence data and to gain a more comprehensive understanding of the phenomenon, thus promoting possible prevention and intervention programs (Backe et al., 2018). This research is especially relevant for the adolescent population, which seems to be the most vulnerable group to the effects of being involved in violent dating relationships (Flach & Deslandes, 2017).

Our study has several limitations. First, violence via new technologies is an emerging phenomenon that lacks internationally terminology. Because of the plethora of terms available, documents using different labels from those selected in this review may have not been identified. Furthermore, by limiting our search to documents written in English and Spanish, this excludes other-language research studies that perhaps lend important information. The next limitation is directly linked to the analysis of the measures. Due to the emergence of new violent behaviors, in some cases, it is difficult to identify their nature and underlying intentions. For example, partner impersonation on social media can be understood as controlling behavior whether it is done to obtain information about one's partner, as well as relational if the intention is to disrupt the partner's peer relationships. In order to facilitate understanding, future measures must include a detailed description of the measured behaviors.

5. Conclusions

To conclude, this systematic review has attempted to gather known information about the available instruments used to measure adolescent cyber dating violence. Besides, it provides a summary of the dimensions identified to date, discussing them according to the population type, to instrument implementation, and their psychometric properties, thus serving as a reference when other scholars will develop new cyber dating violence measures.

According to the measures, cyber dating violence could be considered a multidimensional construct with sexual and nonsexual behaviors grouped into different dimensions. This analysis contributes to the understanding of cyber dating violence as an extension of face-to-face dating violence, allowing the expression and refining of new behaviors like control/monitoring, cyber sexual violence, or public aggression.

Lastly, in line with other authors (Brown & Hegarty, 2018; Geffner, 2016), the literature at times uses the terms aggression, abuse, and violence interchangeably. Authors must define these terms in their measures and the theoretical framework adopted. Accepting the term abuse in their definitions should qualitatively modify the instruments since the aggressions would be accompanied by a specific context

(intents to hurt the partner and the presence of imbalance of power between the partners). In this case, mutual abuse would be less frequent, finding higher prevalence rates in boys (Geffner, 2016). It is fundamental to delimit if we measure aggression, abuse, or violence among teenagers. For example, insulting a partner once via technology can be interpreted as aggression but not considered abuse. It would need to occur several times to be considered abuse, as in face-to-face dating abuse. By contrast, aggression could be considered abuse if it has severe consequences for the victim and if the intention to hurt the partner is clearly stated. For example, the public broadcast of a video with sexual content as a form of *revenge porn*. Future research should also deep whether the public or private exposure to certain behaviors modulates the perception of aggression or abuse.

CRediT authorship contribution statement

María-Luisa Rodríguez-deArriba: Conceptualization, Methodology, Formal analysis, Writing – original draft, Visualization. **AnnaLaura Nocentini:** Conceptualization, Writing – review & editing, Supervision. **Ersilia Menesini:** Conceptualization, Writing – review & editing. **Virginia Sánchez-Jiménez:** Conceptualization, Methodology, Writing – review & editing, Supervision, Project administration, Funding acquisition.

Declaration of competing interest

The authors declare that they have no conflicts of interest.

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