

MARTA RAFAELA DA COSTA LOPES

**SWIPE, TEXT, CALL: AN EXPLORATORY ANALYSIS
OF THE CHARACTERISTICS ASSOCIATED WITH
CYBER DATING VIOLENCE PERPETRATION**

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School of Psychology and Life Sciences

Lisbon

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Abstract

The use of technology and social networks has revolutionised the dynamics of abusive relationships. Previous research has focused on the prevalence of cyber dating violence (CDV) among the adolescent population as well as the characteristics associated with its victimisation. Whilst great strides have been made in this area of research, little is known regarding the characteristics associated with its perpetration with older samples. As such, this study aims to analyse the relationships between CDV perpetration and certain characteristics such as age, sex, historic/present criminal behaviour, and attitudes toward dating violence, and whether these associations are predictive in nature. Therefore, this study hopes to gain a better understanding as to which characteristics are associated with CDV perpetration and why. Five hundred and twenty-one participants were collected as part of a non-probabilistic convenience sample and recruited through various channels such as social media and websites. Chi-square tests and hierarchical linear regressions revealed significant associations between CDV perpetration and age, sex, non-violent criminal behaviour in the last 12 months, and attitudes toward dating violence. More specifically, results were interpreted in relation to previous findings and current literature. Implications and suggestions for future research were discussed.

Keywords: Cyber Dating Violence Perpetration, Age, Sex, Sexist Attitudes, Criminal History

Resumo

O uso da tecnologia e das redes sociais revolucionou a dinâmica dos relacionamentos abusivos. Investigação prévia focou-se na prevalência da violência no namoro por via de meios tecnológicos entre a população adolescente, bem como nas características associadas à (potencial) vitimização. E, embora grandes avanços tenham sido feitos nesta área científica, pouco se sabe sobre as características associadas à sua perpetração com amostras de outras faixas etárias (e.g., jovens adultos). Como tal, este estudo visa obter uma melhor compreensão das relações entre a perpetração da violência no namoro por via de meios tecnológicos e características como idade, sexo, comportamento criminoso prévio e atual e atitudes em relação à violência no namoro, explorando se estas associações são de natureza preditiva. A amostra, de conveniência não probabilística, foi constituída por 521 participantes recrutados por meio de vários canais, através da divulgação do estudo em redes sociais e website institucional. Testes de qui-quadrado e regressões lineares hierárquicas revelaram associações significativas entre perpetração da violência no namoro por via de meios tecnológicos e sexo, idade, comportamento criminoso não violento nos últimos 12 meses, e atitudes em relação à violência no namoro. Os resultados foram interpretados em relação a estudos prévios e à literatura atual. Implicações e sugestões para futuros trabalhos de investigação foram discutidas.

Palavras-chave: Perpetração de Violência no Namoro Cibernético, Idade, Sexo, Atitudes Sexistas, Histórico Criminal

List of Abbreviations

Abbreviation	Definition
APAV	Portuguese Association of Victims' Support
CADRI	Conflict in Adolescent Dating Relationships Inventory
CADRI-P	Conflict in Adolescent Dating Relationships Inventory Cyberviolence Subscale
CDV	Cyber Dating Violence
D-CRIM	Self-Report Questionnaire for Measuring Delinquency and Crime
EAVN	Attitudes Toward Dating Violence Scale
ULHT	University Lusófona of Humanities and Technologies
WHO	World Health Organisation

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Introduction

Conceptual model of cyber dating violence perpetration

Over decades “domestic violence” has adopted many different terms, each with its own definition. The United Nations define domestic violence/abuse “as a pattern of behaviour in any relationship that is used to gain or maintain power and control over an intimate partner” (United Nations, n.d.). The World Health Organisation (WHO) defines intimate partner violence as “any behaviour within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship” (World Health Organization, 2012). Both these definitions provide similar examples of such abuse which include mental, physical, economic, controlling, or sexual behaviour. There is much crossover when looking at what defines abuse in intimate relationships. As such, for the purpose of this investigation, dating violence will be the term most frequently referenced, and will have equal meaning and definition to other terms such intimate partner violence, domestic violence, traditional violence, offline violence and dating abuse among others. The term “cyber dating violence”, which will also be used in this investigation, refers to the perpetration of abuse, particularly psychological and emotional, through technological means such as social networking, texting, and video chatting among others (Hancock et al., 2017). This type of abuse, whilst possessing some of the same components (stalking, harassment, control) as offline violence, is inflicted upon the victim using technological means.

Statistical data, from national services, supports the notion that traditional violence is mostly perpetrated by men (APAV, 2018). However, when we accept this view in its entirety, we neglect the percentage of men that are victims of dating violence perpetrated by women, a figure which is steadily rising (APAV, 2019). Theoretical frameworks often place men as violent and likely to commit aggression toward women when they feel jealous or inferior to exert control and dominance over their partners (Saunders, 2002). In contrast, women are often portrayed as using force in situations of ongoing abuse, such as self-defence (Miller, 2001). These theories can have negative implications regarding the recognition of male victims of domestic abuse. On the other hand, by accepting these theories we essentially place women in the role of victim, denying them any agency or power. When the realities of violence, do not match the perception of violence, it can be difficult to establish real change (Scarduzio et al., 2017). This investigation will consider both male and female perpetrators of dating violence.

Offline dating violence vs cyber dating violence

Perpetration of abuse in intimate relationships has long been studied, with focus on physical, emotional, and psychological forms. Offline dating violence, or what is commonly considered traditional or domestic violence, makes up for roughly 77% of victims supported by the Portuguese Association of Victims’ Support (APAV), making it one of the top 10 crimes

reported in this organization (APAV, 2022). Similarly, research conducted worldwide has shown an elevated prevalence of dating violence, domestic violence and intimate partner violence with regard to its victimization, perpetration and other associated characteristics. Prevalence among these studies range from 13% to as much as 75%, with such violence being mainly perpetrated by male partners/spouses (Babu & Kar, 2009; Gama et al., 2020; Garcia-Moreno et al., 2006; Haynie et al., 2013; Luoma et al., 2011). One study examined the prevalence of male perpetration of intimate partner violence in nine countries (Bangladesh, China, Cambodia, Indonesia, Sri Lanka, and Papua New Guinea; Fulu et al., 2013). Results of this study showed that the perpetration of intimate partner violence by men is highly prevalent (between 25% and 80%) among the general population of these countries (Fulu et al., 2013).

On the other hand, CDV introduces a new dynamic by which perpetrators can inflict abuse upon their victims. Recent studies have found a high prevalence of cyber dating violence/abuse, particularly among youth populations (Borrajó et al., 2015a; Burke et al., 2011; Peskin et al., 2017; Smith et al., 2018). The role technology plays in abusive relationships, allows for another medium by which perpetrators can threaten, harass, and intimidate their victims (Patchin & Hinduja, 2010). Given what we know regarding the prevalence of offline dating violence, perpetrating behaviours tend to differ when applied in an online setting. A review of several CDV studies found that typical perpetrating behaviours include sending threats and insults, humiliation, revenge pornography, cyberstalking, password access, removing a partner's contacts from their phone, intimidating them into responding to attempts of communication, and stopping a partner from accessing technology (Stonard, 2020b; Stonard et al., 2014).

It can be argued that technology introduces a new modality of control, whilst challenging ones' idea of trust in the relationship. As such, password sharing can be seen as a sign of trust in the relationship whilst allowing the perpetrator to monitor the victim's online and offline activities (Baker & Carreño, 2016). Whilst some of the forms of abuse mentioned above can be applied in an "offline setting", the online dynamic of this abuse makes it easier for the perpetrator to obtain information, control and intimidate the victim simultaneously and at all hours of the day. This allows perpetrators to monitor and inflict abuse completely anonymously using fake accounts, making the recognition of said abuse much harder than that of physical abuse, for example (Patchin & Hinduja, 2010). Furthermore, this anonymity has been found to enable perpetrators to inflict abuse with greater ease, whilst allowing them to deny any involvement in said abuse, or to use said anonymity to seek information about their partner from other sources (Stonard, 2020b).

It is of equal importance to consider other characteristics that may impact perpetrators in the context in which they operate. Many studies have analysed the correlations between CDV perpetration and perpetrator characteristics. Such variables include poor physical health and substance use (Van Ouytsel et al., 2017), offline adolescent dating violence perpetration (Doucette et al., 2021; Stonard, 2020a), and the perpetration of bullying (Peskin et al., 2017) among others. A study by Cava et al. (2020) examining the correlations between CDV perpetration, sexist attitudes, romantic myths, and offline perpetration found that offline dating violence, both physical and relational, were predictors of cyber-aggression among boys. For girls, sexist attitudes and romantic myths were predictors of cyber-aggression. Regarding cyber-control, predictors for boys included relational offline violence and hostile sexism whilst predictors for girls included romantic myths and verbal-emotional offline violence.

There are several studies which explore the co-occurrence of cyber dating violence with other forms of violence, as well as the correlation between delinquency/deviant behaviour and offline dating violence (Borrajo et al., 2015a; Cava et al., 2020; Lara, 2020; Millett et al., 2013; Van Ouytsel et al., 2017). Whilst these tend to focus on more traditional forms of dating violence, very few investigate the impact of criminal behaviour, past or present, on CDV perpetration. A study by Verbruggen et al. (2020), analysing a sample of male respondents in steady relationships ($M = 60.14$) found that individuals with a lifetime history of offending were at an increased risk of intimate partner violence perpetration. Seeing as CDV perpetration is correlated with other forms of abuse, one could presume that previous criminal behaviour would also be correlated. Therefore, this begs the question as to whether perpetrators of cyber dating violence possess the same attributes and characteristics as perpetrators of criminal violence, and if so, what are the possible implications of these findings.

Sex Differences

According to the most recent data from APAV, females make up roughly 86% of domestic violence victims in Portugal (APAV, 2018). Furthermore, around 86% of dating violence related crimes were found to be perpetrated by males (APAV, 2018). On one hand statistical data clearly supports the notion that the perpetration of offline dating violence is a male dominated area. On the other hand, and whilst it is general knowledge that offline dating violence perpetrated against male victims is seriously underreported, there has been a reported 33.4% rise in male victims of domestic violence from 2013 to 2018 (APAV, 2019). Additionally, roughly 64% of females have been reported as perpetrators of domestic violence against males (APAV, 2019).

When we consider CDV, sex is not usually a focal point, instead we tend to focus on the dynamics of CDV which include both psychological and emotional abuse. Interestingly, psychological abuse was ranked as the most frequent type of abuse inflicted in both male

(35%) and female (37%) victims of domestic violence (APAV, 2018; 2019). This begs the question as to whether sex differences also apply to CDV perpetration, but unfortunately, little research has examined this difference (or similarity). One previously mentioned study found offline dating violence to be a predictor of cyber aggression and cyber control, but only among boys (Cava et al., 2020). Given the lack of research and seeing as psychological abuse has been identified as key component in both online and offline dating violence, one would conclude that this is an area requiring further investigation.

Age differences regarding relationship status

Research into the prevalence of CDV among the adolescent population currently dominates this area. Numerous studies have examined not only the prevalence (Borrajó et al., 2015a; Burke et al., 2011; Peskin et al., 2017; Smith et al., 2018), but also the correlation between youth CDV and other forms of abuse (Yahner et al., 2015; Zweig et al., 2013). Such studies have found: correlations between cyber dating violence and traditional forms of dating violence (physical, sexual, coercion, humiliation, etc.) among high school and university students (Lara, 2020; Marganski & Melander, 2018); correlations between traditional and cyber dating abuse perpetration, both concurrently and longitudinally (Temple et al., 2016); and finally, a co-occurrence between the perpetration of cyberbullying and dating violence among a youth sample (Yahner et al., 2015). Whilst these studies have raised awareness of the frequency of various forms of violence among teens, there is little focus on other age groups. The age groups observed in the studies previously mentioned include pre-adolescents, adolescents, and young adults.

To date, there are very few investigations into the prevalence of CDV perpetration among the older age groups. One study examining the prevalence of violence and abuse against older women, found that in a sample women aged between 60 and 97 years, 28.1% had experienced some sort of violence or abuse, particularly emotional abuse (23.6%), mostly perpetrated by their spouses or partners (Luoma et al., 2011). Regarding the prevalence rates among the countries examined, the highest prevalence was observed in Portugal (39.4%) compared to Belgium (32%), Finland (25.1%), Austria (23.8%) and Lithuania (21.8%; Luoma et al., 2011). Others that are present in the literature suggest a higher prevalence of CDV in younger adults than older adults such as the study by Lenhart et al. (2017) which found that, in a sample of 2,810 respondents, younger individuals (22%) were three times more likely than those who were 30 years or older (8%) to have been digitally harassed by a former or current partner. Further research into the impact of age on the prevalence of CDV is in line with the results of the above investigation (Henry et al., 2020; Powell & Henry, 2019; Schokkenbroek et al., 2021). The assumption among these studies is that technology is a young man's game, and as such, the younger generation are at a higher risk being that technology is a very big

part of their day-to-day lives. Unfortunately, these studies tend to focus on CDV perpetration among the youth, and as such, research regarding the perpetration of CDV among the other age groups is still scarce.

Interestingly, statistical data from APAV regarding traditional dating abuse has revealed that a high percentage of these perpetrators are between 36 and 45 years old (35-44 for female perpetrators), which is outside the age range observed in the studies previously mentioned (APAV, 2018; 2019). Furthermore, this data has also revealed that this abuse was mostly perpetrated by both male and female spouses (APAV, 2018; 2019). This raises further questions seeing as most adolescents and young adults are in non-marital relationships. Therefore, one could conclude that further investigation is necessary to determine if there is an age difference with regard to the perpetration of cyber dating abuse.

Attitudes toward dating violence

When considering characteristics that may influence the perpetration of dating violence, the role of sex stereotyping is an important one to consider. Even in today's society, the dominant sociocultural model in the western world is based on relatively crystallized definitions of male and female roles that legitimize the asymmetry and, in many cases, the subordination of women to men, as well as male superiority (Blackstone, 2003). This perspective of inequality of power and value to the level of sex roles crosses all social institutions, constituting itself as an organizer of the hierarchy, with functions and expectations of the elements of the family nucleus (Di Napoli et al., 2019; Reyes et al., 2016). As such, and even with the decline of what are considered "traditional" roles for men and women over the years, both victims and perpetrators of dating violence still adhere to violence justifying beliefs (Di Napoli et al., 2019; Lelaurain et al., 2021; Reyes et al., 2016). With regard to victims, this could be explained by their inability to recognise such behaviour as a form of dating abuse (Francis & Pearson, 2021), or it could be that they choose to adopt a more traditional view of relationship roles and as such, view this behaviour as acceptable and non-abusive (Lelaurain et al., 2021). On the other hand, perpetrators tend to use culturally internalized perceptions of men and women's roles in society to justify the use of violence in intimate relationships (Diaz-Aguado & Martinez, 2015; Shen et al., 2012).

With traditional violence, studies have found a correlation between attitudes regarding the justification of violence and the perpetration of dating violence (Schuster, et al., 2021; Shen et al., 2012). A study by Diaz-Aguado and Martinez (2015), in Madrid found that, in comparison with a group of non-violent adolescent males, the remaining groups comprised of boys who isolate and control their partners, exert medium-level emotional abuse and who frequently engage in all types of violence also displayed a greater justification of male dominance and intimate partner violence against women, as well as a greater justification of aggression in

conflict resolution. Furthermore, these groups also reported having received more dominant and violent ideals from their family environment, and perceived intimate partner violence against women as abuse of lesser importance (Diaz-Aguado & Martinez, 2015). Given that violence justifying beliefs have been shown to be associated with the perpetration of intimate partner violence, CDV could be seen as an extension of the justification of this abuse, allowing for the control, harassment and monitorisation of the victim, of which the perpetrator may feel he/she is entitled to. This begs the question of whether attitudes toward dating violence may act as predictors of CDV. Research thus far has revealed positive correlations such as the study by Cava et al. (2020) which found that sexist attitudes and romantic myths were predictors of cyber-aggression and cyber-control among girls, whilst hostile sexism was a predictor of cyber-control for boys. Another study found a relationship between violence-justifying beliefs and online dating aggression (Borrajó et al., 2015b); results also showed that romantic myths were related to an increased likelihood of online dating control. Moreover, sexist beliefs and the justification of violent behaviour have been linked to increased levels of both victimisation and perpetration of control and direct aggression (Linares et al., 2021). The investigation into the justification of violent behaviour as a predictor of cyber dating abuse is crucial in identifying patterns among perpetrators, as well as supplementing prevention programs and awareness campaigns, not to mention the potential impact on its victims.

Aims

Although this area of research is vast, few studies have investigated certain common characteristics of traditional dating violence in an online setting. There is much to be said about the prevalence of CDV perpetration and victimisation among adolescents, but research is yet to extend beyond this age group, especially regarding its perpetration. Furthermore, a review of the literature regarding variables that may influence the perpetration of cyber dating violence requires more extensive investigation. More specifically, variables such as past/present criminal behaviour, attitudes toward dating violence, as well as age and differences in sex, require further analysis. As such, research in this area will serve to educate and provide public awareness regarding warnings signs, risk factors and characteristics associated with the perpetration cyber dating violence. Therefore, the aim of this study is to gain a better understanding as to what characteristics are associated with CDV perpetration and why. As such, the present study has the following objectives:

Objective 1: To investigate the impact of sex on cyber dating violence perpetration.

Hypothesis 1: We hope to find a statistically significant difference between male and female cyber dating violence perpetration.

Objective 2: To compare the effect of age on cyber dating violence perpetration among individuals of any relationship type (single, married, dating, engaged etc.).

Hypothesis 2: We hypothesize that cyber dating violence perpetration will be statistically significant for younger individuals than older individuals, regardless of relationship type.

Objective 3: To investigate the impact of past/present criminal behaviour on cyber dating violence perpetration.

Hypothesis 3: We hypothesize that present or historic criminal behaviour will be significantly predictive of cyber dating violence perpetration.

Objective 4: To investigate the impact of sexist beliefs and the justification of violence on the perpetration of cyber dating violence.

Hypothesis 4: We hypothesize that attitudes toward dating violence will be significantly predictive of cyber dating violence perpetration.

Methodology

Design

The data collected in the present study is part of a wider investigation into the association between antisocial behaviour, crime, and life experiences, and as such, only the data collected and analysed for the purpose of this investigation will be reported.

Participants

The present study consisted of 521 participants, with this being a non-probabilistic convenience sample, and were recruited through various channels such as social media, emails, and websites to prevent sample bias. Participation was voluntary with no remuneration and would only be in effect once the main objectives of the study were explained and informed consent was obtained. As with any study, we included participation criteria which meant that participants involved in this study had to be 18 years old or older and have both a written and oral understanding of the Portuguese language. In line with ethical protocol, participants were not subject to deceit as part of the investigation, nor any risk or harm.

The majority of participants in this study identified as female (81.6%), were single (82.9%) and of Portuguese nationality (96%). Level of education varied, with most of the sample obtaining a bachelor's degree (46.1%) or at least secondary education (34.2%). This sample consisted of mostly students (47.8%) and employed individuals (26.7%). None of the participants reported previous criminal convictions. The complete sociodemographic characteristics of this sample can be seen in Table 1.

Table 1.

Sociodemographic Characteristics of Participants

	<i>n</i>	%*	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Age			25.62	8.59	17	73
Sex						
Male	95	18.2				
Female	425	81.6				
Nationality						
Portuguese	500	96.0				
Other	12	2.3				
Marital status						
Single	432	82.9				
Married/partnered	78	15.0				
Divorced/separated	10	1.9				
Level of education						
4 th year education	1	0.2				
6 th year education	3	0.6				
9 th year education	12	2.3				
Secondary education	178	34.2				
Postgraduate education	30	5.8				
Bachelor's degree	240	46.1				
Master's degree	52	10.0				
Doctorate	5	1.0				
Employment						
Unemployed	31	6.0				
Student	249	47.8				
Employed	139	26.7				
Employed/student	95	18.2				
Retired	3	0.6				

Note. *n* = 521. *% is representative of total number of responses per variable and is reflective of missing values.

Material

Sociodemographic Questionnaire. Information collected from this questionnaire included sex, sexual orientation, age, nationality, marital status, current relationship status and its duration, education, occupation, monthly income, socioeconomic status, dependents, previous pathology, alcohol and other substance consumption.

Self-Report Questionnaire for Measuring Delinquency and Crime (D-CRIM; Basto-Pereira et al., 2017). D-CRIM evaluates the presence of criminal behaviour in the past 12 months and in their lifetime (Basto-Pereira et al., 2017). Participants respond (Yes = 1/No = 0) as to whether they have committed the 12 criminal behaviours listed, both in the last year or at any point in their life. Such examples include theft, robbery, driving without a license, aggression, domestic violence, rape, drug trafficking, illegal possession of a firearm, homicide, family violence, blackmail, and damage to property. Total score for self-reported delinquency is calculated using the sum of items reported in the last 12 months and during the lifetime. With regard to psychometric properties, the D-CRIM showed both concurrent and convergent validity; items from the D-CRIM were also found to have content validity and item sensitivity (Basto-Pereira et al., 2017). The original version of this questionnaire showed appropriate psychometric properties for the Portuguese population (Basto-Pereira & Maia, 2019).

Attitudes Toward Dating Violence Scale (EAVN; Price et al., 1999; Portuguese version by Saavedra et al., 2018). The EAVN is composed of six scales. The first three consist of the Attitudes Towards Male Psychological Dating Violence Scale (15 items), the Attitudes Towards Male Physical Dating Violence Scale (12 items), and the Attitudes Towards Male Sexual Dating Violence Scale (12 items). The other three scales which assess attitudes toward female dating violence include the Attitudes Towards Female Psychological Dating Violence Scale (13 items), the Attitudes Towards Female Physical Dating Violence Scale (12 items), and finally, the Attitudes Towards Female Sexual Dating Violence Scale (12 items) (Price et al., 1999). Good internal consistency was observed for the Attitudes Towards Male Psychological Dating Violence Scale ($\alpha = .801$), the Attitudes Towards Male Physical Dating Violence Scale ($\alpha = .807$), the Attitudes Towards Female Sexual Dating Violence Scale ($\alpha = .852$), and the Attitudes Towards Female Physical Dating Violence Scale ($\alpha = .847$). The internal consistency for the Attitudes Towards Female Psychological Dating Violence Scale was acceptable ($\alpha = .781$), whereas the internal consistency for the Attitudes Towards Male Sexual Dating Violence Scale was questionable ($\alpha = .672$).

Participants' responses to the scales range from 1-5, "strongly disagree" to "strongly agree", where higher scores suggest a greater acceptance of abusive behaviour. Examples of items on the six scales include: "*Girls have a right to tell their boyfriends what to do*"; "*A guy should break up with a girl when she slaps him*"; "*A guy should break up with his girlfriend if she has forced him to have sex*" (Price et al., 1999). The Attitudes Toward Dating Violence Scales were found to have both construct and criterion-related validity.

Conflict in Adolescent Dating Relationships Inventory (CADRI; Wolfe et al., 2001; Portuguese version by Lucas et al., 2017). This self-report inventory is used as a measure of multiple forms of abusive behaviour among teen dating. Both the male and female versions of the CADRI are the same, the only difference being the change of pronouns. The participant is asked to respond by checking the box that best identified how often the listed situations have occurred with their current or ex-boyfriend(s) in the past year.

It is important to note that the Portuguese version introduced a new subscale, cyberviolence, and only included 3 response options which were never, sometimes: this has happened about 1-5 times; and often: this has happened 6 times or more. Similar to the CADRI, the CADRI-P also presents internal consistency, with slightly more elevated values compared to the original version (Wolfe et al., 2001). Internal consistency was also observed with the cyberviolence subscale (Lucas et al., 2017).

Procedure

This study was reviewed and approved by the University Lusófona of Humanities and Technologies (ULHT) Ethics Committee.

The present data was collected using the online platform Qualtrics. Participants were provided informed consent at the start of the questionnaire and were then asked to provide some personal details in the sociodemographic section of the questionnaire. The instruments within the questionnaire were presented in a multiple-choice format, with optional response, meaning that participants were not obligated to answer any of the questions. Keeping in line with confidentiality and anonymity protocol, no personal information that would allow for the participants to be identified was asked. Furthermore, access to this data was only granted to the research team of the current ongoing projects, who in turn, will be responsible for its' collection, analysis, and storage. Portuguese versions of the instruments were used after authorisations were granted. The questionnaire consisted of ten instruments, four of which were relevant to this investigation.

The questionnaire took approximately 30 minutes to complete and the order of the questions, as described above, was the same for all participants. Due to the sensitive nature of the questions regarding intimate partner violence, participants were made aware that they were allowed to omit to any of the questions. Participants were thanked at the end of the experiment and provided with contact details for the principal researchers should they require any support or clarification.

Analytic plan

The present study is a quantitative correlational study since it uses quantitative methodology to verify the association of variables. Data from this study were analysed using the *IBM SPSS* statistical program, version 29. Descriptive analyses were used to describe the sociodemographic characteristics of the participants, as well as the results obtained in the different instruments. Analyses of the internal consistency of the scales were performed. To test the hypotheses, two types of tests were used. The chi-square test was used to see if there were differences between cyber dating violence perpetration and two other variables (i.e., sex and age group).

To verify if the assumptions for the use of the parametric tests were fulfilled, an exploratory data analysis was performed. After an exploratory analysis, it was found that the assumptions for performing parametric tests were not met, so for H3 and H4, parametric and non-parametric equivalent tests of correlation analysis were performed. As advocated by Fife-Schaw (2000), when both procedures produced similar conclusions, the results of the parametric tests were presented, having been verified for the current data. Hierarchical linear regressions were then used to verify the existence of a predictive relationship between the variables. Assumptions regarding the linear regression analysis were met (e.g., no influential cases biasing our model, independence of residuals, absence of multicollinearity), apart from

the P-P plot for all models, suggesting a possible violation of the normality of residuals assumption which can make our results not generalizable beyond our sample (Field, 2009).

In reporting the results below, data for each of these tests came from different subsets of participants out of the 521. This was due to the necessary deletions from participants who provided no response for that specific question. For each test, the responses to the questions listed in the CADRI-P section of the questionnaire were used as dependant variables. However, only the questions that refer to the perpetration of CDV will be reported.

Results

Participants reported an average of 21.35 ($SD = 6.17$) for attitudes toward male psychological violence. As for the types of crime reported in the D-CRIM section of the questionnaire, both violent ($M = 1.69$, $SD = .920$) and non-violent ($M = 1.34$, $SD = .642$) crime throughout their lifetime were reported. With regard to CDV perpetrating behaviours, participants reported excessive messaging (8.1%) and use of a partner's phone without their permission (8.6%) as the most common. The results regarding the descriptive analysis of these instruments are presented in Table 2 and Table 3.

Table 2.

Descriptive Analysis of Instruments

	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
CADRI-P	521	.365	1.25	.00	12.00
EAVN					
Psychological male	521	21.35	6.17	13.00	47.00
Psychological female	517	15.41	4.92	2.00	47.00
Sexual male	520	18.53	3.75	12.00	38.00
Sexual female	515	15.91	5.57	1.00	45.00
Physical male	521	15.04	4.71	10.00	43.00
Physical female	515	15.72	5.50	6.00	53.00
D-CRIM					
Types of crime					
+12M violent crime	156	1.69	.920	1.00	6.00
+12M non-violent crime	173	1.34	.642	1.00	4.00
Last 12M violent crime	37	1.11	.315	1.00	2.00
Last 12M non-violent crime	30	1.17	.379	1.00	2.00

Table 3.

Descriptive Analysis of CADRI-P

	Total sample <i>n</i>	Never <i>n</i> (%) [*]	Happened 1 to 2 times <i>n</i> (%)	Happened 3 to 5 times <i>n</i> (%)
CADRI-P				
1. Excessive messaging	447	411 (91.9%)	17 (3.8%)	19 (4.3%)
3. Use of partner's phone without permission	407	372 (91.4%)	17 (4.2%)	18 (4.4%)
5. Use of technology to insult partner	495	480 (97%)	4 (0.8%)	11 (2.2%)
7. Excessive contacting of partner during the night	488	478 (98%)	4 (0.8%)	6 (1.2%)
9. Creating fake accounts	490	487 (99.4%)	1 (0.2%)	2 (0.4%)
11. Excessive calling	473	454 (96%)	9 (1.9%)	10 (2.1%)
13. Invading partner's email account without permission	496	492 (99.2%)	2 (0.4%)	2 (0.4%)

Note. *n* = 521. *% is representative of total number of responses per variable and is reflective of missing values.

A Chi Square test of independence compared the sex of the participants with regard to the perpetration of CDV. Participant responses revealed a significant difference between male and female participants for the perpetration of certain CDV behaviours. More specifically, a significant association was found between the sex of the participants and the sending of text messages/calls, during the night, with the intent of controlling their partner ($\chi^2(2, N = 487) = 9.75, p = .008$). Furthermore, a relationship between the sex of the participant and creating fake online accounts with the purpose of pretending to be someone else was also observed, with this being a significant association ($\chi^2(2, N = 489) = 13.76, p = .001$). Sex differences regarding CDV perpetration can be observed in Table 4.

Table 4.

Sex Differences in Cyber Dating Violence Perpetration

CADRI-P	Total sample <i>n</i>	Male <i>n</i> (%)	Female <i>n</i> (%)	χ^2	<i>df</i>	<i>p</i>
1. Excessive messaging	446	7 (1.6%)	29 (6.5%)	.387	2	.824
3. Use of partner's phone without permission	407	4 (1%)	31 (7.6%)	2.45	2	.294
5. Use of technology to insult partner	495	—	15(3%)	3.53	2	-
7. Excessive contacting of partner during the night	487	3 (0.6%)	7 (1.4%)	9.75	2	.008
9. Creating fake accounts	489	3 (0.6%)	—	13.76	2	-
11. Excessive calling	472	3 (0.6%)	16 (3.4%)	3.58	2	.167
13. Invading partner's email account without permission	495	1 (0.2%)	3 (0.6%)	1.85	2	.396

A further Chi Square test of independence was used to observe the perpetration of CDV behaviours with regard to age (see Table 5). For this test, participants were divided into two age groups, younger individuals (18-30) and older individuals (31-73). A significant association was observed between age and using a partner's phone, without their permission, with the intent of viewing said partner's messages/calls ($\chi^2(2, N = 407) = 8.40, p = .015$).

Table 5.

Age Differences in Cyber Dating Violence Perpetration

CADRI-P	Total sample n	Younger individuals n (%)	Older individuals n (%)	χ^2	df	p
1. Excessive messaging	447	28 (6.3%)	8 (1.8%)	1.32	2	.517
3. Use of partner's phone without permission	407	23 (5.7%)	12 (2.9%)	8.40	2	.015
5. Use of technology to insult partner	495	13 (2.6%)	2 (0.4%)	.851	2	.653
7. Excessive contacting of partner during the night	488	8 (1.6%)	2 (0.4%)	2.01	2	.366
9. Creating fake accounts	490	3(0.6%)	—	.616	2	.735
11. Excessive calling	473	13 (2.7%)	6 (1.3%)	4.79	2	.091
13. Invading partner's email account without permission	496	2 (0.4%)	2 (0.4%)	3.57	2	.167

Correlations were conducted to examine the association between CDV perpetration and other variables such as criminal history and attitudes toward dating violence. From such correlations we can conclude that a significant association was found between non-violent criminal behaviour in the past 12 months and CDV perpetration ($r = .453$, $p = .012$). Furthermore, CDV perpetrating behaviours were significantly correlated with attitudes toward male psychological violence ($r = .165$, $p < .001$), female psychological violence ($r = .231$, $p < .001$), female sexual violence ($r = .121$, $p = .006$), male physical violence ($r = .223$, $p < .001$), and female physical violence ($r = .188$, $p < .001$). A full description of the correlations between these variables are presented in Table 6 and Table 7.

Table 6.

Correlations Between Criminal History and Cyber Dating Violence Perpetration

Variables	n	M	SD	1	2	3	4	5
1. Cyber dating violence perpetrating behaviours	521	.365	1.25	—				
2. Violent criminal behaviour in the past 12 months	37	1.11	.315	-.073	—			
3. Non-violent criminal behaviour in the past 12 months	30	1.17	.379	.453*	-.293	—		
4. Violent criminal behaviour throughout lifetime	156	1.69	.920	.039	.028	.025	—	
5. Non-violent criminal behaviour throughout lifetime	173	1.34	.642	.000	. ^b	.548*	.260*	—

^b Cannot be computed because at least one of the variables is constant.

* Correlation is significant at the 0.05 level (2-tailed).

Table 7.

Correlations Between Attitudes Toward Dating Violence and Cyber Dating Violence Perpetration

Variables	<i>n</i>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Cyber dating violence perpetrating behaviours	521	.365	1.25	—						
2. Male psychological violence	521	21.35	6.17	.165**	—					
3. Female psychological violence	517	15.41	4.92	.231**	.685**	—				
4. Male sexual violence	520	18.53	3.75	.080	.562**	.590**	—			
5. Female sexual violence	515	15.91	5.57	.121**	.551**	.582**	.633**	—		
6. Male physical violence	521	15.04	4.71	.223**	.646**	.661**	.538**	.438**	—	
7. Female physical violence	515	15.72	5.50	.188**	.586**	.757**	.546**	.632**	.649**	—

** Correlation is significant at the 0.01 level (2-tailed).

To verify whether there was a predictive relationship between previous or present criminal behaviour and CDV perpetration, a hierarchical linear regression was performed. The first block included age and sex as the predictors, with CDV perpetration as the dependant variable. In the second block, non-violent criminal behaviour in the past 12 months was also included as the predictor variable, being that a significant association between this variable and CDV perpetration was observed. CDV perpetration remained as the dependent variable. Overall, the results showed that the first model was significant ($F_{(2,27)} = 3.884$, $p = .033$, $R^2 = .223$). However, only sex was significantly associated with CDV perpetration ($\beta = -0.930$, $t(27) = -2.538$, $p = .017$, 95% $CI = [-1.632, -.178]$). Results showed the second model was also significant ($F_{(3,26)} = 5.253$, $p = .006$, $R^2 = .377$), with both sex and non-violent criminal behaviour in the past 12 months being significantly associated with CDV perpetration ($\beta = -.816$, $t(26) = -2.417$, $p = .023$, 95% $CI = [-1.509, -.122]$ and $\beta = 1.015$, $t(26) = 2.535$, $p = .018$, 95% $CI = [.192, 1.838]$ respectively). In summary, the sex variable explained 22.3% of the variance in the first model, whereas both sex and non-violent criminal behaviour accounted for 37.7% of variance in the second model.

To analyse whether there was a predictive relationship between attitudes toward dating violence and CDV perpetration, several hierarchical linear regressions were performed. For all the regressions, the first block included age and sex as the predictors, with CDV perpetration as the dependant variable. For each regression, the second block included different predictor variables from the attitudes toward dating violence scale including: male psychological violence; female psychological violence; female sexual violence; male physical

violence; and female physical violence, with cyber dating violence perpetration remaining as the dependent variable. The predictor variables included in the second block were based on significant correlations found between these variables and CDV perpetration. Overall, the results showed that in the first block of each regression, predictor variables such as age and sex were not significantly associated with CDV perpetration.

With particular focus on the second model, the first regression was significant ($F_{(3,516)} = 6.662, p < .001, R^2 = .037$), with sex ($\beta = .304, t(516) = 2.067, p = .039, 95\% CI = [.015, .593]$) and attitudes toward male psychological violence ($\beta = .040, t(516) = 4.268, p < .001, 95\% CI = [.021, .058]$) explaining 3.7% of the variance in this model. With regard to attitudes toward female psychological violence as a predictive variable, this regression was also significant ($F_{(3,512)} = 11.404, p < .001, R^2 = .063$), with both female psychological violence ($\beta = .064, t(512) = 5.688, p < .001, 95\% CI = [.042, .086]$) and sex ($\beta = .281, t(512) = 1.973, p = .049, 95\% CI = [.001, .561]$) explaining 6.3% of variance in this model.

The second model of the third regression was significant ($F_{(3,510)} = 3.971, p = .008, R^2 = .023$). In this regression, only attitudes toward female sexual violence were found to be significantly associated to CDV perpetration ($\beta = .034, t(510) = 3.174, p = .002, 95\% CI = [.013, .055]$), with this variable accounting for 2.3% of the variance in this model. The second model of the fourth regression was also significant ($F_{(3,516)} = 10.454, p < .001, R^2 = .057$). Similar to the previously mentioned regression, only attitudes toward male physical violence were found to be significantly associated to CDV perpetration ($\beta = .063, t(516) = 5.437, p < .001, 95\% CI = [.040, .085]$), with this variable accounting for 5.7% of the variance in this model. Finally, the second model of the last regression was also found to be significant ($F_{(3,510)} = 7.734, p < .001, R^2 = .044$). In this regression, only attitudes toward female physical violence were found to be significantly associated to CDV perpetration ($\beta = .047, t(510) = 4.618, p < .001, 95\% CI = [.027, .067]$), with this variable accounting for 4.4% of the variance in this model.

Discussion

This study is among few to examine, in more detail, factors that influence the perpetration of CDV. Most of the quantitative findings supported the research aims and replicated previous findings. The first aim of our study was to investigate the impact of sex on CDV perpetration. Our findings supported the first hypothesis by showing a significant association between the sex of the participants and CDV perpetrating behaviours, namely sending text messages/calls during the night, with the intent of controlling their partner, and creating fake online accounts with the purpose of pretending to be someone else. This could be explained by the recent shift in the technology landscape, whereby a surge in the use of online communication and social media has been observed, significantly altering our methods of communication (Paat & Markham, 2021). Technology can now provide perpetrators with the

means to actively monitor their victims, simultaneously, and use said technology to exert control over the person. Furthermore, social networking sites have blurred the line between reality and imagination, increasing online deception and exploitation (Paat & Markham, 2021). This proves beneficial for perpetrators, allowing them to inflict abuse completely anonymously using fake accounts (Patchin & Hinduja, 2010).

The significant sex differences found in these two behaviours could potentially be explained by the likelihood that such behaviours are more distinct, and less likely to be committed equally by both sexes, compared to behaviours such as excessive messaging/calling or using technology to insult a partner, for example. A study by Baker & Carreño (2016) found that boys viewed their monitoring behaviours as necessary to maintain their relationships, believing that by keeping a close eye on their partner, they would be less likely to lose them to another boy. Girls, on the other hand, reported exerting monitoring behaviours to obtain information on how their partner characterised said relationship online, which one could argue is equally problematic (Baker & Carreño, 2016).

As such, for perpetrators, the sending of text messages/calls with the intent of controlling their partner is facilitated by the use of technology, allowing them to reach their partner at any time, on several different platforms, instantaneously. As observed in the study by Baker & Carreño (2016), as well as our findings, sex differences can explain the increased use of these specific behaviours over other methods of CDV perpetration. In addition to this, the creation of fake accounts allows perpetrators to explore the online world and inflict abuse with fewer restrictions, being that this anonymity provides less chance of being identified and sanctioned for their abusive behaviour (Stonard, 2020b).

Our second aim was to compare the effect of age on CDV perpetration, regardless of relationship type. Findings partially supported our hypothesis that CDV perpetration would be statistically significant for younger individuals compared to older ones. More specifically, we found that younger individuals were more likely to use a partner's phone, without their consent, with the intent of viewing their messages/calls. Contrary to extensive literature that demonstrates the prevalence of teen/adolescent CDV behaviours (Borrajó et al., 2015a; Burke et al., 2011; Peskin et al., 2017; Smith et al., 2018), our findings found a significant association for one particular behaviour. This is surprising, given that the present literature suggests a higher prevalence of CDV perpetration among younger individuals (Lenhart et al., 2017, Henry et al., 2020; Powell & Henry, 2019; Schokkenbroek et al., 2021).

A possible explanation for such results may be attributed to the rise in the use of technology among the older population. Studies have observed a steady increase in internet usage among older adults in recent years (Madden & Zickuhr, 2011; Anderson & Perrin, 2017; Fox, 2004), and although younger individuals still dominate this cyberspace, the older

population have begun to bridge this rather large gap over the years. Furthermore, some studies have revealed internet usage with the intent of establishing or maintaining romantic relationships, can increase with age, as opposed to decreasing (Stephure et al., 2009; Erjavec & Fiser, 2016). It has also been reported that among certain dating sites, at least 50% of members are 26 years old or older, with matchmaking service accounts reporting at least 50% of their members being above 35 years old (Huang et al., 2015). Given the present literature and the findings from this study, one could suggest that the perpetration of CDV behaviours may be increasing among older individuals, bridging the age gap between the perpetration of such behaviours. Unfortunately, these studies fall short of identifying or exploring the prevalence of CDV perpetration among this older population, and therefore, at this point, we can only speculate.

Within this study, we also aimed to investigate the impact of present/historic criminal behaviour on CDV perpetration. Our findings confirmed our hypothesis and were among the first to reveal that both sex and non-violent criminal behaviour in the past 12 months were predictive of cyber dating violence perpetration. Contrary to these findings, previous studies have shown that there is a correlation between offline/traditional dating violence and cyber aggression among boys (Cava et al., 2020). Previous research has also identified offline/traditional violence as being mainly perpetrated by men (APAV, 2018; Babu & Kar, 2009; Garcia-Moreno et al., 2006; Fulu et al., 2013). As such, one would expect our findings to show a predictive relationship between violent criminal behaviour and CDV perpetration, yet this was not the case.

A plausible explanation for this could be attributed to the similarities between CDV and non-violent criminal behaviour, being that, unlike violent criminal behaviour, it does not have direct and physical components. Similarly, the cyber element of dating abuse, makes this violence non-confrontational and at times undetectable, making it harder to identify, and to be perceived as a violent act (Patchin & Hinduja, 2010). In this way, cyber dating violence may not be seen in the same way traditional violence is, being instead categorised as a non-violent type of abuse. Regarding the sex component of this relationship, a study by Cava et al. (2020) revealed that romantic myths and verbal-emotional offline violence were predictors of cyber-control among girls. Looking at the present data, most CDV behaviours were perpetrated by women. Such findings could suggest that sex differences and non-violent criminal behaviour are predictive of CDV perpetration given that women are less likely to use traditional violence than men, opting instead for less violent, but equally criminal/aggressive, behaviours.

The final aim of this study was to investigate the impact of sexist beliefs and the justification of violence on the perpetration of CDV behaviours. Findings supported our hypothesis that attitudes toward dating violence would be significantly predictive of CDV

perpetration. More specifically, attitudes toward female sexual violence, male physical violence, and female physical violence alone, were found to be predictive of such behaviour, whereas both sex and attitudes toward male psychological violence, as well as female psychological violence were predictive of CDV perpetration. Such findings are in line with previous research, which has shown violence-justifying beliefs and romantic myths to be linked with an increased likelihood CDV perpetration (Borrajó et al., 2015b; Cava et al., 2020; Linares et al., 2021).

Conceptual frameworks have been shown to provide plausible explanations for the relationships observed in our data. From a Social Learning Theory perspective, aggression is a learned behaviour, normally through the observation of others or how the behaviour itself is viewed or accepted by others (Bandura, 1977; Copp et al., 2019). Because family members are the primary bonding figures for children, violence within this environment can allow the child to develop accepting attitudes toward violence which can present themselves in later relationships (Bandura, 1977; Copp et al., 2019). This has been further addressed by more recent studies, which suggest that the link between attitudes toward dating violence and dating violence perpetration may be attributed to the victim's inability to recognise this behaviour as abusive (Francis & Pearson, 2021), or that they may choose to adopt a traditional view of relationship roles and as such, accept this behaviour as non-abusive (Lelaurain et al., 2021).

Furthermore, Social Learning Theory posits that when children are exposed to or are victims of such violence, these experiences become behavioural scripts for the use of violence, and as such may view aggression and violence as acceptable methods of conflict resolution, increasing their likelihood of perpetrating such behaviour in later relationships (Bandura, 1977; Copp et al., 2019). In line with this theory, studies have found a correlation between the justification of dating violence against women and the perpetration of traditional violence (Diaz-Aguado & Martinez, 2015; Schuster, et al., 2021; Shen et al., 2012), with one study reporting having received more dominant and violent ideals from a family environment as being correlated with dating violence perpetration (Diaz-Aguado & Martinez, 2015). Given the findings from this study, it is plausible that the present literature, about the correlation between attitudes toward dating violence and traditional forms of violence, as well as conceptual framework explanations such as the one from the Social Learning Theory, could apply to CDV perpetration.

The present study is not without its limitations. Regarding the methodology, there was a lack of a representative sample, in that it mostly consisted of females ($n = 425$, 81.6%), meaning it could not speak to the entire population. This appears to be a recurring theme among studies, in that the most accessible participants tend to be university students, most of which are female. This was also the case for age, given that this study aimed to investigate

age differences regarding the perpetration of CDV, and the median age of our sample was 25.62 years old. Furthermore, this study was in line with other research samples, in that it also fails to address the middle-aged population. Most of the literature referenced in this study with regard to age focuses on samples of students and younger individuals, with a few containing samples of 60 years old and older, neither of which address a crucial age gap in our population, a limitation which future studies should address.

These limitations seem to highlight a bigger issue within the research itself, which is that non-probabilistic convenience samples, albeit the standard practice among scientific research, are disadvantaged regarding their generalizability (Bornstein et al., 2013; Jager et al., 2017). These samples are used mainly because they are cost-effective, timesaving and more widely available, however, due to their lack of generalizability, they may yield biased estimates of the target population, which does not bode well for the progression of scientific discovery (Bornstein et al., 2013; Jager et al., 2017). Potential solutions are complex, given the previously mentioned time and cost-effective aspects of using such samples. Homogenous convenience samples have been suggested as a potential way to address this limitation, in that such samples are homogenous with regard to one or more sociodemographic factors (Jager et al., 2017). For example, when investigating older adults with respect to CDV perpetration, a homogenous convenience sample would be entirely focused on participants over the age of 30 or within a specific age group. These samples could also be used with respect to sex. Albeit rare, such samples could provide insight into otherwise underrepresented groups (Jager et al., 2017), as was the case in the present study.

Another limitation identified in the present study would be the low number of affirmative responses to the CADRI-P items (considering the “*total n*” of the sample). Whilst such numbers may be reflective of the sample of this study, they may also indicate that items listed in the CADRI-P are not fully representative of the range of behaviours that fall under the umbrella of CDV. Previous CDV studies have identified common perpetrating behaviours to include: sending threats and insults, humiliation, revenge pornography, cyberstalking, password access/sharing, removing a partner’s contacts from their phone, intimidating them into responding to attempts of communication, and stopping a partner from accessing technology (Baker & Carreño, 2016; Stonard, 2020b; Stonard et al., 2014), most of which, were not present in the Cadri-P, and therefore, not analysed. On the other hand, the lack of responses could be attributed to the idea that respondents may not have perceived such events as aggressive in nature (Francis & Pearson, 2021; Lelaurain et al., 2021). In addition to this, to obtain an adequate power and effect size, for both the first and second hypotheses, g*power analyses indicated that the ideal sample size would consist of 108 participants.

This study, despite its limitations, has relevant contributions. It is an exploratory analysis of CDV in older samples and it is among the first to establish a predictive relationship between sex and non-violent criminal behaviour, in the past year and CDV perpetrating behaviours. These findings provide a basis for future investigations to examine why non-violent criminal behaviour was predictive compared to violent criminal behaviour, as well as the role sex plays in this dynamic. With regard to the methodology, future studies would benefit from a comparative analysis between CADRI-P CDV items and CADRI traditional violence items. Furthermore, future research would also benefit from obtaining responses from both elements of the couple, simultaneously, and being able to match these answers (taking into consideration confidentiality and anonymity) as a way of understanding whether this phenomenon is bidirectional, as well as what majority are victims and/or perpetrators.

The present results can be useful to future campaigns, to provide awareness of signs and risks of CDV and related variables. In addition to this, the information gathered should be used to supplement dating violence prevention programs, many of which do not address CDV as a type of abuse. The present study's limitations should be used to highlight the necessity for future studies to consider the impact of sampling within their research and what this could mean for their findings. Overall, this study, its findings, and its limitations have highlighted a global issue which is CDV perpetration, as well as the need to further understand this phenomenon and its dynamics in emerging adults.

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