

ORIGINAL ARTICLE

# *Cyber dating abuse and ghosting behaviours: personality and gender roles in romantic relationships*

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## BACKGROUND

Cyber dating abuse (CDA) refers to physical, verbal, and psychological violence perpetrated towards a romantic partner via technology and social media. Another emerging form of online abuse is ghosting, a silent strategy to dissolve undesired relationships without openly having to break them up. The aims of the current study were (i) to explore the relationship between CDA and ghosting behaviours in romantic relationships and (ii) to investigate the roles of gender and personality traits (conscientiousness, agreeableness, extraversion, emotional stability, openness) in prediction of CDA (perpetration and victimization).

## PARTICIPANTS AND PROCEDURE

A sample of 409 participants (64.8% females), aged between 18 and 53 years ( $M_{\text{age}} = 26.40$ ,  $SD = 6.06$ ), took part in the study.

## RESULTS

CDA and ghosting behaviours are interrelated, and women were more prone than men were to use ghosting strate-

gies, such as stopping messages abruptly and punishing the partner through silence. Moreover, gender and personality traits differently predicted direct aggression and control/monitoring perpetration and direct aggression victimization, but they were not significant predictors of control/monitoring victimization.

## CONCLUSIONS

The findings are discussed in light of gender differences to improve our understanding of the psychological factors involved in cyber dating violence.

## KEY WORDS

cyber dating abuse; perpetration; victimization; ghosting behaviours; romantic relationships; gender; personality traits

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## BACKGROUND

In the last few decades, the use of online platforms and social networks to build and maintain relationships has become widespread (Abbasi, 2019; Valkenburg & Peter, 2011). Romantic couples have also quickly gone beyond face-to-face communication and become accustomed to using technology to stay in touch, even at a long distance, with partners in daily routine. Despite this benefit, electronic media have also provided new opportunities for harassment and dating abuse in relationships (Baker & Carreno, 2016). Cyber dating abuse (CDA) is defined as “control, harassment, stalking and abuse of one’s dating partner via technology and social media” (Zweig et al., 2014, p. 1306). Another form of “abuse” poorly explored in romantic relationships is ghosting. Specifically, “ghosting” refers to “a way of ending a relationship with someone suddenly by stopping all communication with them” (Cambridge Dictionary, 2021). In the current study for “ghosting behaviours”, we refer to silent strategies of breaking communication between partners such as interruption of messaging, punitive silence, and actual disappearance, i.e. ghosting. This ghosting can occur through one technological means or many by, for example, not responding to phone calls or text messages, or disappearing by blocking the partner on social network platforms. Ghosting *per se* is the ultimate use of the silent treatment, a tactic that has been considered a form of emotional cruelty (Navarro et al., 2020). CDA and ghosting behaviours are conceptually intended here as different forms of abuse within romantic relationships, which may share aspects of couple violence (overt and covert) with distressing implications for a partner’s mental health. Despite studies on CDA having increased considerably in recent years (e.g., Zweig et al., 2013), research on the combination of gender and personality traits influencing specific online behaviours – direct aggression and control/monitoring – is still in its early stage. Moreover, empirical investigations on ghosting behaviours are in their infancy. Therefore, the aims of the present study were 1) to extend previous research on CDA by exploring associations with ghosting behaviours and 2) to investigate concurrently gender and personality traits as predictors of CDA.

### CYBER DATING ABUSE AND GHOSTING BEHAVIOURS

Studies investigating CDA have increased significantly in recent years (see Caridade et al., 2019, for a review), developing several assessment tools (see Brown & Hegarty, 2018, for a review). However, to date, most research has mainly focused on specific types of CDA (e.g., cyber sexual abuse) or on the perpetration or victimization of abuse separately. The Cyber

Dating Abuse Questionnaire (CDAQ), implemented by Borrajo et al. (2015b), introduced a comprehensive perspective of the issue, including both victimization and perpetration of abuse as mutually occurring behaviours in romantic relationships, as highlighted in several studies (e.g., Archer, 2000; Swahn et al., 2010). Furthermore, the CDAQ includes direct aggression (e.g., verbal attacks, insults, threats, and humiliation) and cyber control (e.g., the need for monitoring the partner’s location and company; Gámez-Guadix et al., 2018) as both contributing to dating abuse. Previous studies on European populations have revealed that rates of perpetration of online direct aggression varied from 10.6% (Borrajo et al., 2015a) to 14.7% (Caridade et al., 2019), and perpetration of control ranged from 49.6% (Van Ouytsel, Ponnet, & Walrave, 2017) to 88.4% (Borrajo et al., 2015b). Direct aggression victimization rates ranged from 14% (Borrajo et al., 2015b) to 31.7% (Gámez-Guadix et al., 2016), whereas control/monitoring victimization rates ranged from 65% (Van Ouytsel et al., 2017) to 81% (Gámez-Guadix et al., 2016). The increasing spread of CDA behaviours in romantic relationships is related to the opportunity for them to occur at any place or time, even when the partners have ended the relationship. Indeed, certain individuals prefer to adopt strategies to dissolve undesired relationships without ever having to break them up completely (LeFebvre et al., 2019). This specific form of managing relationships has been conceptualized as ghosting and constitutes an insidious way of not ending a romantic relationship, generally characterised by shorter duration and less commitment than those relationships terminated through direct conversation (Koessler et al., 2019). Generally, ghosting refers to unilateral access to individual(s) prompting relationship dissolution (suddenly or gradually), commonly enacted via one or multiple technological media (LeFebvre, 2017). A previous study (LeFebvre et al., 2019) reported that the number of emerging adults who have been ghosted by a romantic partner ranged between 13% and 23%. Ghosting differs from other relationship dissolution strategies insofar as it takes place without the partner immediately knowing what has happened, leaving him or her to manage alone the partner’s lack of communication (Freedman et al., 2019). The unexplained disappearing typical of ghosting and other additional forms of silent treatment such as punitive silence (Williams et al., 1998), facilitated by technologies, trigger in victims feelings of psychological discomfort, social pain, loneliness, and distress. However, at present, minimal academic literature on this phenomenon exists (e.g., Freedman et al., 2019).

### GENDER ROLE IN CYBER DATING ABUSE

In the victim–perpetrator relationship, the role of gender is still debated. Indeed, although some studies

have supported gender differences in CDA perpetration (e.g., Bennett et al., 2011; Leisring & Giumetti, 2014; Zweig et al., 2013) indicating males as the main perpetrators, other researchers recorded similar rates between males and females (e.g., Reed et al., 2017) or reported slight gender differences in cyber abuse (e.g., Borrajo et al., 2015a; Temple et al., 2016). Similarly, researchers have not found gender differences in the prevalence of victimization (Leisring & Giumetti, 2014; Smith et al., 2018; Wolford-Clevenger et al., 2016). Further studies showed that a greater proportion of females were victims of CDA compared with males (Dick et al., 2014; Reed et al., 2017; Zweig et al., 2013), while the latter were found to be the main perpetrators (Jaen-Cortés et al., 2017). On the other hand, some researchers have reported that men were more victimized than women were (Bennett et al., 2011; García-Sánchez et al., 2017), but, at the same time, they were the main perpetrators of this type of abuse (Leisring & Giumetti, 2014). Thus, regarding the gender role, further explorations of perpetration and victimization are required. Moreover, to date, empirical evidence for ghosting behaviours is extremely scarce, and Navarro et al. (2020) reported no significant differences in ghosting attitudes according to gender.

#### PERSONALITY ROLE IN CYBER DATING ABUSE

Close relationships are considered the principal context in which personality is expressed through daily interactions (Reis et al., 2002; Robins et al., 2002). Therefore, personality can play a pivotal role in CDA and ghosting behaviours that requires exploration. In a meta-analysis on personality traits and aggression, Bettencourt and colleagues (2006) argued that neuroticism and agreeableness were involved in abusive behaviours. Specifically, a previous study on cyber violence in social media (Zarnoufi & Abik, 2019) evidenced an association between the perpetrators' personality traits – investigated through the five-factor model of personality, also referred to as the Big Five personality dimensions (Costa & McCrae, 1992) – and their harmful behaviours. Individuals who were high in neuroticism tended to experience psychological distress and negative affect more intensely. As a result, they seemed more hostile, anxious, depressed, and impulsive, as well as more prone to irrational behaviours in their relationships. Individuals low in agreeableness tended to be unfriendly and irritable, to mistrust others, to act in ways that excluded individuals they did not like, to feel a need to attack or punish, and to lack emotional expression and attachment to others (Hines & Saudino, 2008). Regarding gender differences in personality traits, previous studies reported that women were higher on Big Five extraversion, agreeableness, and neuroticism scores than men (Weisberg et al., 2011). Specifically, the gender dif-

ference testing by the Big Five Inventory-10 (BFI-10) showed an increase in scores for conscientiousness, neuroticism and openness in favour of women (Balgiu, 2018). In cyber relationships, as in offline ones, personality traits could play a significant role in predicting violence in partners' interactions.

#### CURRENT STUDY

The present study aimed to extend past research on CDA deepening the role played by personality and gender in two facets – victim and perpetrator – and the co-occurrence with ghosting behaviours in adult romantic relationships. The specific goals were to (a) examine rates of CDA and gender differences; (b) explore ghosting behaviours and their relationship with CDA, personality, and gender; and (c) examine personality and gender as predictors of perpetration and victimization in CDA.

### PARTICIPANTS AND PROCEDURE

#### PARTICIPANTS

A total of 409 Italian participants, 265 women (64.8%), aged between 18 and 53 ( $M = 26.40$ ,  $SD = 6.06$ ), filled in the questionnaire.

In regards to provenance, the majority of participants (323, 79%) live in Northern Italy, 33 respondents (8.1%) in Central Italy and 53 (13%) in Southern Italy.

Regarding qualifications, 16 participants had a junior high certificate (3.9%), 156 had a high school diploma (38.1%), 122 had a bachelor's degree (29.8%), 87 had a master's degree (21.3%), and 28 had a specialization or Ph.D. (6.8%).

Concerning relationships, 112 (27.4%) participants were single, 227 (55.5%) were in a relationship, 59 (14.4%) lived with their partner, and 11 (2.7%) were married.

Regarding the length of their last romantic relationship, 64 (15.6%) participants reported having had a 6-month relationship, 135 (33%) were engaged in a relationship that lasted between 6 months and 2 years, 115 (28.1%) had a 2- to 5-year relationship, 73 (17.8%) had a 5- to 10-year relationship, and 22 (5.4%) had a relationship lasting more than 10 years.

#### PROCEDURE

Participants were contacted online using an Internet survey that was developed with Google Forms, a questionnaire-generating tool. The link to participate was disseminated through social media platforms (Facebook, WhatsApp, etc.) and emailing. The participants were so enrolled by means of a snow-

balling procedure. The questionnaire was drafted in Italian, and the sample was provided with a brief of the study. Participation in the study was voluntary and there were no dropouts. In accordance with the standard procedure for minimal-risk online surveys, all participants provided their consent through survey completion. No personally identifiable data were collected. The survey took place in 2020. This study was conducted in agreement with the ethical norms laid out by the Italian National Psychological Association. As standard procedure for minimal-risk online survey, the study was approved by the Department of Educational Science of the University of Bologna.

## MEASURES

*The Cyber Dating Abuse Questionnaire* (CDAQ; Borrajo et al., 2015b) consists of 40 items (20 for each scale) that collect information about various types of cyber dating abuse, such as threats, identity theft, control and humiliation. CDAQ shows two latent dimensions: Direct Aggression (DA; 11 items) refers to aggressive behaviours conducted against the (former) partner through electronic means; Control/Monitoring (C/M; 9 items) relates to surveillance attitudes or invasion of privacy of the (ex) partner. Moreover, each item is expressed in two versions for the different scales, one for the Perpetration scale (e.g., “I wrote a comment on the wall of a social network to insult or humiliate my partner or former partner”) and one for the Victimization scale (e.g., “My partner or former partner made a comment on a wall of a social network to insult or humiliate me”). The response set is on a 6-point Likert scale, which asks how often the behaviours have occurred during the last year of the romantic relationship: from 1 (*never*), 2 (*not in the last year, but it occurred before*), 3 (*rarely: 1 or 2 times*), 4 (*sometimes: between 3 and 10 times*), 5 (*often: between 10 and 20 times*) and 6 (*always: more than 20 times*). The total score ranges from 20 to 120, where higher values indicate a higher frequency of dating abusive behaviours, either as a victim, or as an aggressor. Internal consistency: DA (Perpetration  $\alpha = .66$ ; Victimization  $\alpha = .82$ ); and C/M (Perpetration  $\alpha = .73$ ; Victimization  $\alpha = .74$ ).

*Ghosting behaviours* were collected through three ad-hoc items designed by the authors. Questions concerning ghosting explore how frequently (on a Likert scale from 1 – *never* to 6 – *ever*) some strategic and abusive behaviours spreading through social networks occur: stop messaging abruptly with the partner (“How frequently, during a text-message argument with your partner, do you stop replying before the conversation can be declared over for both of you?”); using punitive silence toward the partner (“How frequently have you made yourself unavailable to your partner to punish him/her?”); ending

a relationship by disappearing (“How frequently have you ended a relationship by disappearing into thin air, i.e. making yourself unavailable through any means of communication and/or blocking your partner’s profiles?”);  $\alpha = .56$ .

*The Big Five Inventory* (BFI-10; Italian version of 10-item scale; Guido et al., 2015) was validated by Rammstedt and John in 2007. BFI-10 is a short version of the BFI-44 (John et al., 1991) and consists of two items for each Big Five dimension representing the core traits of their domain: extraversion (I see myself as someone who... “is outgoing, sociable”;  $\alpha = .63$ ), emotional stability (I see myself as someone who... “gets nervous easily”;  $\alpha = .72$ ), conscientiousness (I see myself as someone who... “does a thorough job”;  $\alpha = .30$ ), agreeableness (I see myself as someone who... “is generally trusting”;  $\alpha = .26$ ), and openness (I see myself as someone who... “has an active imagination”;  $\alpha = .31$ ). Answers are on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

## DATA ANALYTICAL APPROACH

Statistical analyses were run using SPSS version 24. First, we ran descriptive statistics – frequencies and means – for each variable of interest. The chi-squared test was used to compare the sentimental status and the length of the relationships in females and males. A set of ANOVAs were used to analyse whether there were differences in CDA and ghosting behaviours based on the length of the relationship. Then, gender differences were calculated in CDA and ghosting behaviour using independent samples *t*-tests. In order to describe the relationships among the dimensions investigated, we ran Pearson’s bivariate correlations. Finally, we conducted four multiple linear regression analyses to examine the contribution of gender and the BFI-10 traits to the explained variance of CDA Direct Aggression Perpetration, Control/Monitoring Perpetration, Direct Aggression Victimization and Control/Monitoring Victimization. A priori power analysis run with G\*Power (Erdfelder et al., 1996) indicated that a sample size of 57 would be sufficient to detect an effect size  $f^2$  of .35 in a linear multiple regression with six predictors, a power of .90 and  $\alpha$  of .05.

## RESULTS

### PREVALENCE OF CDA AND GHOSTING BEHAVIOURS

Regarding CDA prevalence rates, we considered all the responses from “not in the last year, but it occurred before” to “always or more than twenty times”. Regarding Direct Aggression, the percentage of pepe-

tration was 67.4% ( $n = 276$ ), whereas the victimization percentage was 80.8% ( $n = 331$ ). With respect to Control/Monitoring, 96.1% of the participants ( $n = 394$ ) experienced some forms of perpetration, and 90.5% experienced some forms of victimization ( $n = 371$ ).

Regarding ghosting behaviours, 239 (58.5%) participants had resorted to punitive silence against their partner, 276 (67.4%) had stopped responding to messages, and 76 (18.6%) had ended a relationship by disappearing.

#### SENTIMENTAL STATUS

As regards relationships (sentimental status), cohabiting and married respondents were quite well distributed among females and males, but women were found to be more likely to be engaged in a romantic relationship than men (females = 59.2% vs. males = 48.6%), who, instead, were more likely to be single (females = 23.4% vs. males = 34.7%) [ $\chi^2(2, N = 409) = 6.30, p = .043$ ].

#### LENGTH OF THE RELATIONSHIP

The relationships of women were significantly more stable than those of men [ $(\chi^2(1, N = 409) = 4.53, p = .033; 87.2\%$  vs.  $79.2\%$  “in a relationship longer than

6 months”]. However, concerning CDA no differences were found in short (less than 6 months) and in longer ones (more than 6 months) in the Perpetration of Direct Aggression ( $M_{short} = 14.48, SD = 4.36; M_{long} = 13.68, SD = 3.55; p = .109$ ) or Control/Monitoring ( $M_{short} = 17.42, SD = 5.23; M_{long} = 17.06, SD = 5.59; p = .627$ ), and in Victimization of Direct Aggression ( $M_{short} = 16.56, SD = 5.41; M_{long} = 16.35, SD = 6.02; p = .796$ ) or Control/Monitoring ( $M_{short} = 16.59, SD = 6.47; M_{long} = 16.15, SD = 5.47; p = .564$ ). Also, ghosting behaviours were equally common in short relationships (less than 6 months) and in longer ones, as concern “to stop replying before the conversation could be declared over” ( $M_{short} = 2.33, SD = 1.27; M_{long} = 2.38, SD = 1.25; p = .776$ ), “to make yourself unavailable to the partner to punish him/her” ( $M_{short} = 2.22, SD = 1.18; M_{long} = 2.04, SD = 1.13; p = .258$ ) and “ending a relationship by disappearing” ( $M_{short} = 1.27, SD = 0.78; M_{long} = 1.38, SD = 0.85; p = .306$ ).

#### GENDER DIFFERENCES

In terms of gender differences (see Table 1), *t*-tests showed some differences in CDA perpetration between males and females, with men reporting higher scores on Direct Aggression Perpetration and women scoring higher on Control/Monitoring Perpetration.

**Table 1**

*Means and ANOVA differences for gender among study variables*

	<i>M</i> ( <i>SD</i> )	Gender		<i>t</i>	<i>d</i>
		Men ( <i>n</i> = 144) <i>M</i> ( <i>SD</i> )	Women ( <i>n</i> = 265) <i>M</i> ( <i>SD</i> )		
1. CDAQ DA Perpetration	13.81 (3.70)	14.65 (4.54)	13.35 (3.06)	-3.44***	-0.36
2. CDAQ DA Victimization	16.39 (5.92)	16.87 (6.37)	16.13 (5.66)	-1.21	-0.13
3. CDAQ C/M Perpetration	17.11 (5.53)	15.54 (5.41)	17.97 (5.41)	4.33***	0.45
4. CDAQ C/M Victimization	16.22 (5.63)	16.83 (6.44)	15.89 (5.12)	-1.61	-0.17
5. Stop messaging abruptly	2.37 (1.26)	2.18 (1.18)	2.47 (1.29)	2.25*	0.23
6. Punitive silence	2.07 (1.14)	1.90 (1.05)	2.16 (1.17)	2.22*	0.23
7. Ending a relationship by disappearing	1.36 (.84)	1.44 (.91)	1.32 (.80)	-1.43	-0.15
8. BFI-10 Extraversion	6.29 (1.82)	6.13 (1.79)	6.37 (1.83)	1.26	0.13
9. BFI-10 Emotional stability	5.70 (2.10)	6.23 (2.04)	5.42 (2.08)	-3.81***	-0.39
10. BFI-10 Conscientiousness	7.13 (1.60)	6.79 (1.65)	7.32 (1.53)	3.26**	0.34
11. BFI-10 Agreeableness	6.34 (1.76)	6.39 (1.83)	6.31 (1.72)	-0.44	-0.05
12. BFI-10 Openness	7.50 (1.80)	7.73 (1.72)	7.38 (1.83)	-1.89	-0.20

*Note.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; CDAQ – Cyber Dating Abuse Questionnaire; DA – Direct Aggression; C/M – Control/Monitoring; BFI-10 – Big Five Inventory-10; *t* – independent samples *t*-test; *d* – Cohen’s *d*.

Women were significantly more likely than men were to practise ghosting behaviours in their romantic relationships through social networks, except for disappearing, for which no significant difference between males and females was found.

Regarding Big Five personality traits, men showed significantly higher levels of emotional stability and lower levels of conscientiousness compared with women.

## CORRELATIONS

Pearson correlations (see Table 2) showed that in CDA the perpetration is strongly and positively correlated with CDA victimization, both in the Direct Aggression and in the Control/Monitoring dimensions. Moreover, Direct Aggression Perpetration shows a moderate and positive correlation even with Control/Monitoring Perpetration and Victimization. Direct Aggression Victimization shows a moderate and positive correlation with Control/Monitoring Victimization, but only a small and positive correlation with Control/Monitoring Perpetration.

Stopping messaging abruptly is strongly and positively correlated with punitive silence, but ending a relationship by disappearing shows only weak, positive and significant correlations both with stopping messaging abruptly and punitive silence.

Concerning BFI-10, agreeableness shows a moderate positive correlation with emotional stability and a small positive correlation with extraversion. Conscientiousness is moderately and positively correlated with both extraversion and emotional stability.

Direct Aggression Perpetration was weakly and positively correlated with all ghosting behaviours and with BFI-10 openness, whereas it showed a weak negative correlation with emotional stability and agreeableness. Likewise, Direct Aggression Victimization showed a similar pattern of correlations but, unlike Perpetration, it was not related to stopping messaging abruptly.

Control/Monitoring Perpetration shows a positive moderate correlation with punitive silence, and a weaker and positive correlation with stopping messaging abruptly. Control/Monitoring Victimization shows weak and positive correlations with all ghosting behaviours. Both stopping messaging abruptly and punitive Silence are weakly and negatively related with emotional stability and agreeableness. Stopping messaging abruptly shows a small and negative correlation with openness. However, ending a relationship by disappearing does not show a significant correlation with any dimension of the BFI-10.

The first multiple linear regression analysis was conducted to examine the prediction of Direct Aggression Perpetration from gender and BFI-10 personality traits. The model explained about 9.5% of the variance

in Direct Aggression Perpetration [ $F(6, 402) = 7.04, p < .001, R^2 = .10$ ]. Gender was a significant predictor of DA Perpetration [ $\beta = .20, t(402) = 3.93, p < .001$ ], with males showing a 1.51 points higher score on DA Perpetration than females. Extraversion [ $\beta = .10, t(402) = 2.02, p = .044$ ], emotional stability [ $\beta = -.13, t(402) = -2.47, p = .014$ ] and agreeableness [ $\beta = -.16, t(402) = -3.24, p < .001$ ] also significantly predicted DA Perpetration. Conscientiousness and openness were not significant predictors of DA Perpetration (see Table 3).

The second multiple linear regression analysis was conducted to examine the prediction of DA Victimization from gender and BFI-10 personality traits. The model explained about 6% of the variance in Direct Aggression Victimization [ $F(6, 402) = 4.01, p = .001, R^2 = .06$ ]. Emotional stability [ $\beta = -.12, t(402) = -2.27, p = .024$ ] and openness [ $\beta = .15, t(402) = 3.07, p = .002$ ] significantly predicted DA Victimization. Gender, extraversion, conscientiousness and agreeableness were not significant predictors of DA Victimization (see Table 3).

The third multiple linear regression analysis was conducted to examine the prediction of Control/Monitoring Perpetration from gender and BFI-10 personality traits. The model explained about 9.6% of the variance in C/M Perpetration [ $F(6, 402) = 7.13, p < .001, R^2 = .10$ ]. Gender was a significant predictor of Direct Aggression Perpetration [ $\beta = -.17, t(402) = -3.41, p = .001$ ], with females showing a 1.96 points higher score on Control/Monitoring Perpetration than males. Emotional stability [ $\beta = -.17, t(402) = -3.19, p = .002$ ] and agreeableness [ $\beta = -.12, t(402) = -2.34, p = .020$ ] also significantly predicted C/M Perpetration. Extraversion, conscientiousness and openness were not significant predictors of C/M Perpetration (see Table 3).

The fourth multiple linear regression analysis was conducted to examine the prediction of Control/Monitoring Victimization from gender and BFI-10 personality traits. The *F*-test of overall significance indicated that the model does not provide a good fit of data [ $F(6, 402) = 1.77, p = .104, R^2 = .03$ ]; none of the predictors were found to be significant at the level of .05, two-tailed.

## DISCUSSION

The literature shows that the use of online platforms and social networks is increasingly common in romantic relationships and can be used as a medium to perpetrate abuse and control a partner. The main aims of this study were to examine personality and gender roles in CDA perpetration and victimization dimensions and to explore the relationship between CDA and ghosting behaviours. Regarding perpetration of abuses, on one hand, male gender, extraversion, and

Table 2

Correlation analysis between variables among the total sample

	1	2	3	4	5	6	7	8	9	10	11	12
1. CDAQ DA Perpetration	–											
2. CDAQ DA Victimization	.53***	–										
3. CDAQ C/M Perpetration	.31***	.20***	–									
4. CDAQ C/M Victimization	.31***	.35***	.57***	–								
5. Stop messaging abruptly	.17***	.09	.21***	.14**	–							
6. Punitive silence	.25***	.17***	.32***	.21***	.50***	–						
7. Ending a relationship by disappearing	.19***	.14**	.09	.20***	.11	.24***	–					
8. BFI-10 Extraversion	.06	.02	.05	.04	.02	.01	.01	–				
9. BFI-10 Emotional stability	-.13**	-.13**	-.23***	-.10*	-.13	-.10*	.02	.04	–			
10. BFI-10 Conscientiousness	-.03	-.03	.00	-.05	-.05	-.08	.01	.21***	.19***	–		
11. BFI-10 Agreeableness	-.18***	-.12*	-.16**	-.06	-.15	-.18***	-.04	.16**	.29***	.07	–	
12. BFI-10 Openness	.12*	.16**	-.05	.04	-.11	-.03	.05	.03	.00	.05	-.01	–

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ ; CDAQ – Cyber Dating Abuse Questionnaire; DA – Direct Aggression, C/M – Control/Monitoring; BFI-10 – Big Five Inventory-10.

**Table 3**

*Results of the four linear regression analysis models. Each model considered separately as a dependent variable DA Perpetration, DA Victimization, C/M Perpetration and C/M Victimization. Gender, extraversion, emotion stability, conscientiousness, agreeableness and openness were considered as predictors in all models*

	Model 1		Model 2		Model 3		Model 4	
	DA Perpetration		DA Victimization		C/M Perpetration		C/M Victimization	
	<i>B (SE)</i>	$\beta$	<i>B (SE)</i>	$\beta$	<i>B (SE)</i>	$\beta$	<i>B (SE)</i>	$\beta$
Gender	1.51 (.38)	.20***	.90 (.63)	.07	-1.96 (.57)	-.17**	1.13 (.61)	.10
Extraversion	.20 (.10)	.10*	.12 (.16)	.04	.19 (.15)	.06	.20 (.16)	.07
Emotional stability	-.23 (.09)	-.13*	-.34 (.15)	-.12*	-.43 (.14)	-.17**	-.27 (.14)	-.10
Conscientiousness	.03 (.12)	.01	.00 (.19)	.00	.00 (.18)	.00	-.10 (.19)	-.03
Agreeableness	-.34 (.11)	-.16**	-.32 (.17)	-.10	-.37 (.16)	-.12*	-.15 (.17)	-.05
Openness	.19 (.10)	.09	.49 (.16)	.15**	-.11 (.15)	-.04	.08 (.16)	.03

*Note.* \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; DA – Direct Aggression; C/M – Control/Monitoring.

low levels of emotional stability and agreeableness were predictors of direct aggression. On the other hand, female gender and low levels of emotional stability and agreeableness were the features explaining cyber control/monitoring behaviours. Concerning victimization, gender was not a significant predictor, whereas emotional stability and openness were involved in direct aggression victimization experiences. Gender and personality traits were not predictive of online control/monitoring victimization. These findings support previous literature suggesting that men and women perpetrate CDA differently: men tend to perpetrate more direct acts of aggression (Perry & Pauletti, 2011), whereas women exhibit more indirect behaviours, such as monitoring online conduct (Taylor & Xia, 2018).

In cyber dating literature, involvement of personality traits in CDA is under-researched. However, in alignment with intimate partner violence in non-virtual interactions, our findings showed that low levels of emotional stability and agreeableness played a significant role in both cyber direct aggression and control perpetration. Neurotic people might behave impulsively, with mood dysregulation and unstable feelings towards others. Previous studies have shown that in “real life,” neurotic men were perpetrators of intimate partner violence (Hellmuth & McNulty, 2008), and emotionally unstable women practised psychological aggression in their romantic relationships (Rampersad, 2008). Moreover, researchers have reported that low agreeableness has a predictive relationship with perpetration of both psychological and physical/sexual abuse (Carton & Egan, 2017).

Furthermore, Ulloa and Hammett (2016) found that openness, extraversion, and neuroticism emerged as the three most important risk factors in both the perpetration and victimization processes. In our re-

search, the findings showed that male gender, extraversion, neuroticism, and unpleasant traits predicted cyber direct aggression perpetrating behaviours. However, only neuroticism and openness contributed to being victimized by others’ aggressiveness. Indeed, the curiosity and interest of open individuals, along with emotional instability, could be dangerous when interfacing with strangers through online platforms. The aforementioned traits were not predictors of control victimization. Other personality characteristics could probably predict involvement in claustrophobic and controlling relationships.

Our findings regarding the gender role in perpetration of abuse through social networks and technology supported some evidence in the CDA literature (Deans & Bhogal, 2019; Bennett et al., 2011; Chang et al., 2011). Indeed, men tended to express more directly their aggressiveness towards their partner via social media, whereas women preferred to exert power over their partner through more subtle and silent forms of online control. Similarly to offline interpersonal abuse, online, young men might use direct violent actions as a way of controlling women’s behaviours that are beyond their control (Rodríguez-Domínguez et al., 2020): persecution thus becomes a continuation of the relationship, the loss of which is perceived as too threatening. Women were more likely to resort to control perpetration and some ghosting behaviours in their romantic relationships through social networks, such as by stopping message exchanges unexpectedly or resorting to punitive silence towards their partner. It is notable that men and women did not differ in their victimization by cyber abuse. This is consistent with previous studies (e.g., Wolford-Clevenger et al., 2016) involving adults, but in contrast to other research (Temple et al., 2016) with adolescents that found more women to be victimised

compared with men. One hypothesis for these results could be that during adulthood, gender stereotypes tend to fade when it concerns online romantic relationships. In addition, it should be considered that the online lives of adolescents exhibit age-specific characteristics (often using different platforms) compared with those of adults (Biolcati, 2010).

With regard to ghosting, a previous study (Navarro et al., 2020) found no significant differences according to gender or current sentimental status (single or having a partner) among the participants. Accordingly, men and women did not differ in ending a relationship by disappearing. However, cyber control and “lighter” ghosting behaviours were more practised by the female gender and were correlated with each other. This is consistent with our findings on more silent strategies to perpetrate abuse enacted by women. Our results seem to reflect gender stereotypes prevalent in our society. Indeed, differences in online and offline abusive attitudes might be a cultural and extreme reflection of men and women’s behavioural way of expressing negative emotions (such as anger and fear of being left) in romantic relationships. Nonetheless, the fact that we did not find a gender-related effect in our sample in “actual ghosting” (ending a relationship by disappearing) and online victimization suggests that gender differences could be flattening out in cyber romantic relationships. Moreover, unlike face-to-face relationships, remote online communication makes it much easier not to take responsibility for one’s actions, as there is often a lack of feedback in the real world.

Furthermore, the very strong zero order correlation between perpetration and victimization scores supports previous research indicating that this type of abuse tends to have an overlapping nature. In other words, victims of violence are more likely to use similar strategies with perpetrators, or they might relate to individuals who are inclined to carry out abuse in their romantic relationships (Palmetto et al., 2013). These results can be explained following the social learning theory (Van Ouytsel et al., 2020), according to which behaviours are learned through social interactions and, in this scenario, emphasized by the shared use of social media.

Moreover, the result of the lack of difference in frequency of ghosting behaviours between individuals in short relationships (less than 6 months) and in longer ones suggests that committing to the emotional relationship is not as influential. Romantic couples could have a great acceptance of abusive behaviours such as silent treatment, perceiving them as a sign of love or demonstration of jealousy (Ollen et al., 2017; Borrajo et al., 2015a) instead of as passive-aggressive behaviours.

Nowadays, the increasing occurrence of CDA is highlighted by the significant prevalence rates of this phenomenon. In our sample, percentage rates were

higher on average than in previous studies: 67.4% of the participants were engaged in direct aggression perpetration, while 96.1% carried out cyber control/monitoring behaviours. Moreover, 80.8% of the participants had experienced a form of direct aggression victimization, and 90.5% had experienced control/monitoring abuse. The less explicit nature of abusive controlling behaviours (e.g., constant sending of messages, surveillance of the dating partner), compared with that of direct aggression, might underpin these higher prevalence rates. Indeed, some youths do not always identify CDA behaviours as being a form of abuse. Abusive control/intimidation behaviours are sometimes justified by youths as not being “very important” or form part of the normal interaction involved in romantic relationships. Thus, youths might tend to trivialize abusive behaviours as “a joke” (Lucero et al., 2014). Cyber control/monitoring could be considered a less violent form of attack for the victims, and checking on or leaving the romantic partner through digital media might feel more socially acceptable and less like a violation of trust for the perpetrators than offline forms of surveillance behaviours (Utz & Beukeboom, 2011). Nonetheless, considering the detrimental effects experienced by victims, CDA may be considered a silent but insidious phenomenon (Bennet et al., 2011; Ybarra, 2004).

Additional findings in this field could have important implications for the psychological well-being of partners, to break the progressive cycle of CDA. Identifying personality profiles as antecedents of violent behaviours and deepening the role played by gender of both victims and perpetrators would assist early screening of dating violence and improve primary prevention programmes of affective education in virtual interactions. In fact, in our opinion, preventive activities should be carried out both at a social/community level and at an individual level and should be closely related to information by giving wide coverage in the media to events on the matter.

## LIMITATIONS AND FUTURE DIRECTIONS

Limitations include data collection, as the participants were self-selecting and not very homogeneous in gender and age distribution, which biases the generalizability of the results regarding the CDA behaviours of the Italian population. Moreover, data were self-reported and consequently vulnerable to specific biases (e.g., social desirability).

Some limitations apply to the measures: the items on ghosting behaviours were developed by us and detected different aspects (e.g., online behaviours toward the partner and ways of breaking up relationships). Future studies could benefit from a validated scale on the specific topic of ghosting. In fact, even though questions were inspired by literature on the

subject, the three items did not show satisfactory internal consistency. Also the internal consistency of the BFI is weak given the fact that a scale with two items per factor is involved (Balgiu, 2018). The weakest  $\alpha$  index is related to conscientiousness, agreeableness and openness. This is consistent with other studies on validation of the instrument (e.g. Carciofo et al., 2016).

Furthermore, the CDAQ factors refer differently to the partner and former partner, so the two scales could be related to partners' behaviours at different moments of the romantic relationship's development.

Finally, the regression model only accounted for 10% or less of the variance in CDA dimensions. This means that other predispositions lead to CDA perpetration and victimization (i.e., narcissism or alexithymia), which future studies should consider.

Regarding future research directions, more investigation is required to determine the role of specific variables predicting control/monitoring victimization. Due to the large diffusion and social acceptance of dating controlling activities, future research should also involve clinical samples of victimization to explore predictors and detrimental effects on psychological well-being. Additionally, studies should further explore CDA's related variables using a longitudinal design to deepen the understanding of mutual conduct victimization and perpetration. Finally, researchers should collect more detailed data about ghosting behaviours and the types of relationships that are ended by ghosting (e.g., casual meetings, short-term relationships, committed relationships) and learn more about these new, quieter forms of online relationship violence in romantic relationships.

Despite the above limitations, the present study has some strengths for researchers and clinicians. From a conceptual perspective, these data could help in the construction of a theoretical model to better understand cyber abuse perpetration and victimization in intimate relationships. In line with previous research, the findings support gender differences in CDA perpetration and the pivotal role of personality traits such as low emotional stability, low agreeableness, and extraversion when related to males. In turn, openness is involved in the victimization experience. In terms of practical implications, clinicians should consider the presence of this trait-gender combination in understanding dating abuse and tailoring interventions accordingly.

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