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**Meta-Analysis of Cyber Intimate Partner Violence’s Perpetration and Victimization:
Type Differences and Their Associations with Face-To-Face IPV Among Men and
Women**

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Abstract

Cyber intimate partner violence (C-IPV) is a technology-mediated form of violence. It has been examined only in the last 10 years as a form of violence that can cause psychological damage to its victims. How this phenomenon connects to and differs from face-to-face IPV (F2F-IPV) has been, as yet little studied. Research has not made clear whether sex differences may impact its use, particularly in light of the fact that no physical coercion is used in C-IPV. Thus, the current research aimed to investigate through a meta-analysis: differences between the average levels of different types of C-IPV victimization and perpetration; the association between C-IPV and F2F-IPV victimization and perpetration; and, whether the answers to these questions were dependent on sex. The current meta-analysis drew on 46 studies, within 44 papers, with a total sample of 27,491 participants. Findings from 22 of these studies showed no significant sex differences between the average levels of different types of C-IPV victimization and between different types of C-IPV perpetration. These 22 studies showed positive large effect sizes for the correlation between C-IPV and F2F-IPV perpetration and victimization. Moreover, in both perpetration and victimization, sex did not impact the level of association. The findings suggested that C-IPV and F2F-IPV are highly correlated, and though not the same, they may share similar characteristics. Additionally, the results suggested that sex differences do not impact non-physical aggression, such as C-IPV. The implications for preventive strategies include that IPV interventions should also focus on alleviating instances of C-IPV.

Keywords. electronic aggression, digital dating abuse, cyber dating abuse, intimate partner violence, meta-analysis, cyber aggression, gender

Meta-Analysis of Cyber Intimate Partner Violence's Perpetration and Victimization: Type Differences and Their Associations with Face-To-Face IPV Among Men and Women

Cyber intimate partner violence (C-IPV or cyber IPV) is a technology-mediated form of violence. It has been investigated only in the last ten years as an expression of violence and has been given different constructs and definitions (Rocha-Silva et al., 2021). Most frequently, it has been defined as a form of intimate partner violence (IPV) that occurs between two individuals who are currently, or have been, intimately involved with each other (Cano-Gonzalez et al., 2021; Watkins et al., 2018). Cyber IPV includes monitoring a partner's online activities, exerting control over their online communications, making hostile threats, and/or sharing embarrassing photos via electronic tools. These and other behaviors have also been labeled as digital dating abuse, electronic aggression, or cyber dating abuse. Relatively recent typologies outline C-IPV as including psychological aggression (Leisring & Giumetti, 2014), sexual aggression (Zweig et al., 2013), and cyber stalking behavior (Schnurr et al., 2013). Since the C-IPV phenomenon began to be examined, the literature has questioned its nature: Is C-IPV indirect aggression or another way of controlling/abusing, that is, traditional aggression in intimate relationships (for example, psychological, physical) (Schoffstall & Cohen, 2011)? To answer this question, the field must still focus upon the basic questions regarding this phenomenon: 1) How is this phenomenon distributed, specifically among different ages; 2) What are the sex delineations of its perpetrators and persons injured; and 3) Is this phenomenon associated with F2F-IPV. Therefore, the current study, by using meta-analysis methods, offers an in-depth examination of the possibility of sex differences in different types of C-IPV, whether there are C-IPV associations to face-to-face IPV (F2F-IPV), and an exploration of sex differences in the association between C-IPV and F2F-IPV among adults.

Regarding the phenomenon's distribution, the extant literature on C-IPV suggests

very inconsistent rates of both victimization and perpetration. To illustrate, based on a research synthesis, victimization rates were found to range from 2% to 38% and perpetration rates from 5% to 46% among adolescents examined in different studies (Stonard et al., 2014). Additionally, a systematic review of dating abuse showed that the reported rate of cyber dating victimization through online control ranged from 65% to 81% in the reviewed studies (Caridade et al., 2019). Rates not limited to a specific age among youth (ages ranged between 10 and 26 years old) have been found to vary from 8.1% to 93.7% for perpetration and 5.8% to 92% for victimization (see systematic review, Caridade et al., 2019). In addition, victimization among female adolescents and women were found to range from 1% to 78% (Fernet et al., 2019). Further, aside from the issue of inconsistent rates, as most studies have examined this kind of aggression during adolescence and young adulthood, many questions regarding this phenomenon specifically among adults remain open. Therefore, the current study focuses its in-depth examination of the multidimensional nature of C-IPV (the types) only within this adult population.

When cyber IPV is broken down into categories, inconsistent results persist. The first such category, *psychological aggression* (Leisring & Giumetti, 2014) includes both use of information (e.g., pictures, video, word messages) from technology and posting or sending information through technology to cause emotional harm to one's partner (e.g., spreading rumors about their partner on social media or repeatedly insulting their partner over text). The perpetration rate of psychological aggression was found to range from 34% to 64% and the victimization rate varied from 29% to 94.8% in the reviewed studies (for a systematic review on dating abuse see Caridade et al., 2019). The second category, *sexual aggression* (Zweig et al., 2013), includes requesting or pressuring partners to send sexual content against their wishes, pressuring partners to engage in sexual acts, and sending unwanted sexual content to partners. The rate of victimization for sexual aggression ranged from 13% to 92.6%

(Caridade et al., 2019). The third type, *cyber stalking behavior* (Schnurr et al., 2013), includes accessing electronic devices and accounts without a partner's permission and monitoring partners through electronic devices (Watkins et al., 2018). A systematic review of dating abuse showed that the rate of cyber dating victimization through online control ranged from 65% to 81% (Caridade et al., 2019). Despite the broad range of findings and the differentiation of cyber IPV into categories, there has yet to be a meta-analysis of C-IPV among adults that takes into account data on the specific types of C-IPV.

In addition to investigating the nature of C-IPV, both in terms of perpetration and victimization, scholarship has discussed whether the nature of the aggression of C-IPV is different from that of F2F-IPV. Those who have claimed that C-IPV is not part of F2F-IPV's acts of physical aggression have suggested that C-IPV is indirect aggression, meaning, one not connected directly to F2F-IPV victimization (Borrajo et al., 2015). Other studies have claimed that this abuse is part of face-to-face abuse as it is used before or after the occurrence of face-to-face abuse. Thus, search questions about the nature of the C-IPV phenomenon and its differences from F2F-IPV can be framed through the possible distinctions across men and women. Empirical data in F2F-IPV literature point out that the rates of men and women using violence are almost similar (Stith et al., 2012; Straus, 2011; Straus & Michel-Smith, 2014). The main difference is that men's violence is more severe and causes more physical and emotional harm (Hamby, 2016; Johnson, 2008). This is claimed to be due to the physical differences between men and women. Thus, the sex distribution in C-IPV use may differ from that which typifies face-to-face IPV because, on social media, the physical strength to perpetrate violence and aggression is not of consequence. However, it is also possible that these digital behaviors are associated with later in-person victimization experiences (e.g., the pressure to send sexual photos over social media may be followed by the pressure to perform sexual acts in person), and that this aspect makes C-IPV victimization experiences more

impactful (Henry & Powell, 2018).

Furthermore, while meta-analytic exploration revealed that females were slightly less likely to cyber-bully than males (Barlett & Coyne, 2014), some evidence suggested that women perpetrate greater levels of psychological aggression in general (e.g., Archer, 2000), also when comparing sex differences in relation to different types of F2F-IPV (Hines & Saudino, 2003). Although men perpetrate sexual violence more (e.g., Hines & Saudino, 2003), examination of how sexual violence may be expressed in C-IPV is important. Thus, if C-IPV is considered a form of traditional F2F-IPV aggression, males would be more likely to perpetrate stalking (that is, it can be considered as a type of physical control) and sexual cyber IPV than females. On the contrary, if it is considered relational/indirect aggression, females would be slightly more likely to perpetrate cyber IPV than males as has been found in relation to psychological aggression (Archer, 2000). Thus, there is a need to examine how C-IPV and F2F-IPV inter-relate and to examine the differences between men and women in using and experiencing cyber IPV.

In order to examine the possible sex differences between C-IPV and F2F (both victimization and perpetration) there is a need to examine also sex differences in relation to the different types of C-IPV. Yet, the several studies that have examined sex differences within the different types of C-IPV perpetration and victimization have suggested only mixed findings. Whereas among teens, males have been found to be more likely to engage in online threatening behaviors, especially those involving sexual coercion (Henry & Powell, 2018), females have been found to use monitoring behaviors more frequently (Lucero et al., 2014). Some researchers pointed out that women had higher rates of "intimate terrorism" than men over cyberspaces (Daskaluk, 2016); for example, females were significantly more likely than males to monitor the email accounts of their partners (25% vs. 6%) (Burke et al., 2011).

An overall association between C-IPV and F2F-IPV would possibly elucidate the nature

of the C-IPV phenomenon and its distinctions from F2F-IPV. To date, only a few review or meta-analysis studies exist. Generally, in a meta-analysis, intercorrelation was found between traditional F2F-IPV victimization and cyber-victimization ($r = .43$) (Gini et al., 2018). Indeed, studies have also found C-IPV to be associated with other manifestations of abuse among couples. For example, in one study a high correlation was found between C-IPV and F2F-IPV perpetration (Watkins et al., 2018). In addition, a longitudinal model found that being a victim of F2F-IPV predicted being a victim of C-IPV (Temple et al., 2016) and a regression model found that psychological aggression in F2F-IPV showed a statistically significant relationship with cyber dating abuse victimization (Borrajo et al., 2015). In relation to the possible role of sex in the relationships, one study found less physical F2F-IPV and C-IPV among men than among women (Schnurr et al., 2013). Other studies have found that this association is stronger (Watkins et al., 2021) or similar (Flach & Deslandes, 2017) among men. As such, it is important to further explore the complexity of this phenomenon by using the meta-analysis approach to compare the levels of C-IPV (i.e., a multidimensional model of C-IPV) and F2F-IPV, and moreover, to examine the associations between these two forms of IPV, and how sex informs these associations.

The Current study

The unanswered questions this study sought to address are the extent of the C-IPV phenomenon among adults in the accumulated C-IPV literature, its relation to F2F-IPV, and how its characteristics differ between men and women. In particular, the current meta-analysis aimed to clarify the possible sex differences of this phenomenon and the possible sex-related associations between face-to-face IPV and cyber IPV. In doing so, we integrated the existing empirical literature and its testing methods and built upon its diversity: its different types of populations, ages, and geographical locations. The two research questions examined were: (1) Are there sex differences between average levels of different types of C-

IPV, related to either victimization or perpetration in adults; (2) How do cyber IPV and face-to-face IPV perpetration and victimization relate to one another and what is the association between C-IPV and F2F-IPV perpetration and victimization in overall terms and when separated by cyber aggression type and sex.

Method

Search Strategy

Searches were conducted and completed by a health sciences librarian on October 4, 2019, and articles were identified through computerized searches of seven central databases of social work and psychology: EBSCO PsycINFO, Criminal Justice Abstracts, ERIC, MEDLINE, Social Sciences Full Text (H.W. Wilson), APA PsycArticles and Web of Science. We considered searching PubMed and Google scholar; however, after running the search in both databases, we realized that neither added unique articles. The PIs have expertise with studying IPV, and C-IPV. Together with the co-authors, the PIs discussed and identified all formal terms that denoted and related to "IPV" "cyber space" and "communication through cyberspace." Based on the decision to use the most expanded search terms in this study, the S1 and S3 terms attempted to encompass any type of expression that would represent IPV. In adding S2 terms, we restricted the study to IPV occurring in the cyber domain. Our search terms were highly inclusive to maximize the chances of locating relevant papers and included any type of C-IPV. A multitude of search terms used the following structure: (S1) intimate partner or dating or romantic or "affective relationship*" or domestic; (S2) cyber* or digital or electronic or technology* or online or social media or internet or apps or mobile device; (S3) aggression or violence or bullying or harassment or abuse or monitor* or control* or coerci* or stalking or sexting or unwanted pursuit behaviors or victimization or perpetration. Results were limited to papers published between 2000 and 2019 (Figure 1) and distributed by database: 5,490 from Ebsco PsycINFO, Criminal

Justice Abstracts, ERIC, MEDLINE, Social Sciences Full Text (H.W. Wilson), 96 from APA PsycArticles, and 5,168 from Web of Science. Total: 10,754, Duplicates: 2,036, Grand total after duplicates: 8,718; search conducted in April 2019.

This search resulted in a pool of 8,718 papers after removing duplicates. The scanning of this pool of papers was conducted in two steps. The first step involved examining abstracts to identify relevant articles. This step was conducted by the first five authors, comprised of two graduate-level (JC, VC) and two PhD-level researchers (OG, RC), and one senior undergraduate researcher (OT) with research experience in the field of C-IPV. The research team consisted of social workers and psychologists. We found that 8,394 papers either did not include the relevant variables for C-IPV or fit the exclusion criteria (i.e., thesis/dissertation, not in English or Spanish languages¹) and these articles were excluded. In the second step, the remaining 324 papers were examined closely by reviewing the whole paper according to the detailed inclusion criteria. At this stage, 234 papers were excluded, due to the following reasons: the papers did not address C-IPV or the papers were duplicate records and hence were excluded. This process ended with 44 papers being included in the review. All stages of the identification, screening and eligibility were performed by the first five authors. Ten percent of the screening and 20% of the data coding were reviewed and coded by two different coders as part of the reliability process. Inconsistencies were noted in approximately 10% of the articles during the screening and data coding process, and these were discussed until consensus was reached. A detailed account of the stages of the literature screening appears in the PRISMA diagram in Figure. 1.

Study Inclusion and Exclusion Criteria

Studies were included if they met the following inclusion criteria: (1) examined any type

¹ English and Spanish papers were considered as members the research team had fluency in those languages.

of C-IPV; (2) assessed participants ages 18 years or older or with a mean age of 18 years or older. This was included because this study's focus is on IPV in adult relationships; (3) provided sufficient information to allow for an effect size calculation (i.e., means, standard deviations, zero-order correlations); (4) were peer-reviewed studies; and, (5) were available in English or Spanish. Five coders (two PIs and another three coders) assessed all studies for inclusion. Studies were excluded if they met the following exclusion criteria: 1) thesis/dissertation; 2) exclusive use of qualitative designs; or, 3) school population.

Data Extraction

The following data were coded from each study: (1) description of the sample; (2) geographical location of study; (3) sample size; (4) binary gender of participants (male vs. female); (5) age (average or range) of participants (in years); (6) descriptive statistics of C-IPV and F2F-IPV (mean, SD, frequencies); (7) descriptive statistics of types of C-IPV, namely, psychological, stalking, sexual, or other, and of F2F-IPV, namely, psychological or physical; (8) all quantitative statistical indicators of the relation between C-IPV and F2F-IPV (split by sex and IPV type). Data drawn for each included study appear in Table 1.

Methodological Quality Appraisal

Each study underwent a methods appraisal to ensure quality and validity of included findings by using an 11-point assessment scale. This included a 9-point assessment scale created by a prior meta-analytic study in the field used to evaluate the studies on sexting behavior in adolescents (Mori et al., 2019). We added two additional assessment criteria, namely, measurement of reliability and provision of information on missing data (please see the Appendix). Each criterion was given a score of 0 (information absent) or 1 (information present) and scores were summed for a total quality score out of a possible 11, with higher scores indicating better study quality (Table 6). Consistent with previous research, scores of 1 to 3 were considered low quality, 4 to 6 were of moderate quality, and 7 to 11 were high-

quality studies. One low-quality study was eliminated from the analysis.

Data Analysis

Analyses were conducted using the Stata software version 15 (StataCorp., 2017). In Section I, effect sizes represent sex differences between mean levels of C-IPV types. Effect sizes were coded so that a positive difference indicated that C-IPV/F2F-IPV types were higher in males than in females. In Section II, effect sizes reflected the strength of the correlation between types of C-IPV and F2F-IPV. Effect sizes were coded so that a positive effect size indicated a positive correlation between levels of C-IPV and F2F-IPV. In this section, the analyses contained two parts: in the first, the correlations between C-IPV types and F2F-IPV types were examined; in the second section, subgroups analyses were presented focusing on the correlations between C-IPV types and F2F-IPV types split by sex.

Results

We will first address C-IPV, looking into cyber perpetration types followed by cyber victimization types. We will examine the sex differences in types of cyber perpetration and types of cyber victimization. Second, we will examine the correlation between C-IPV types and F2F-IPV types.

Section I – Cyber Perpetration and Cyber Victimization: Means/SDs Across Sex

In this section, we address the sex differences in levels of cyber perpetration and cyber victimization.

Section Ia. Sex Differences in Cyber Perpetration

A total of 8,940 participants were assessed in the 16 studies included in this section of our meta-analysis. Of these, 3,309 were men and 5,631 women and the average number of participants in each study was 558.75 (*range: 79 to 1,167*). The mean age of participants was 25.53 ($SD = 5.00$, *range: 18 to 70*) across the 16 studies. Most studies were conducted on U.S.-based samples (43.75%), with study samples also from Italy, Spain, Mexico, Israel, and

Ghana. All studies were cross-sectional in nature and the earliest study was published in 2011.

As shown in Table 2, the pooled effect size for the difference between male and female participants on levels of cyber perpetration across 40 effect sizes in 16 separate studies was non-significant (*Cohen's d* = 0.01, 95% CI [-0.17, 0.19]). Homogeneity analyses indicated that the set of effect sizes was primarily homogenous: $\tau^2 < .001$.

Section Ib. Sex Differences in Cyber Victimization

A total of 10,714 participants were assessed in the 23 studies included in this section of our meta-analysis. Of these 4,107 were men and 6,607 were women, with the mean number of participants in each study being 46.582 (*range*: 35 to 1,136). The mean age of participants was 25.06 (*SD* = 5.00, *range*: 18 to 70) in each study. Nearly half of the studies were conducted on samples based in the U.S. (47.62%), with study samples also from Italy, Spain, Peru, Belgium, Mexico, Israel, and Ghana. All studies were cross-sectional in nature and the earliest study was published in 2011.

As depicted in Table 2, the pooled effect size for the difference between male and female participants on levels of cyber victimization, across 80 effect sizes in 22 separate studies, was non-significant (*Cohen's d* = -0.18, 95% CI [-0.58, 0.30]). Homogeneity analyses indicated that the set of effect sizes was primarily homogenous: $\tau^2 < .001$.

Section II – Correlations Between C-IPV and F2F-IPV Types

In this section, we addressed the correlations between types of cyber perpetration and face-to-face perpetration and sex differences in levels of correlation by type of IPV.

Section IIIa. Correlations Between Cyber Perpetration and Face-to-Face Perpetration

A total of 7,557 participants were assessed in the 16 studies included in our meta-analysis, with 2,784 men and 4,773 women, with an average number of 503.80 participants in each study (*range*: 79 to 1,167). The mean age of participants was 25.66 (*SD* = 5.70) in each

study. Many of the studies were conducted in the U.S. (46.67%), with studies conducted also in Australia, Italy, Spain, and Israel. All studies were cross-sectional in nature.

As shown in Table 3, the pooled effect size for the associations between perpetration of cyber IPV and perpetration of face-to-face IPV, across 148 effect sizes, was *Fisher's z* = 0.43 (95% CI [0.34, 0.52]), indicating that individuals who reported perpetrating C-IPV also reported perpetrating F-IPV. This correlation was significant for male (*Fisher's z* = 0.43, 95% CI [0.31, 0.54]) and for female participants (*Fisher's z* = 0.37, 95% CI [0.23, 0.52]). Homogeneity analyses indicated that the set of effect sizes was primarily homogenous: $\tau^2 = .03$.

Given the relative lack of heterogeneity and smaller number of studies for moderation analyses, we conducted two moderation analyses for variables that were of a priori interest: sex and age. These variables were entered separately to bivariate meta-regression analyses. As can be seen in Table 3, the two moderators were not statistically significant ($p < .05$). However, due to its empirical importance, we conducted analyses split by sex.

IPV Perpetration and Sex. Table 3 outlines effect sizes by sex and by types, indicating that all effect sizes were significant. This suggests that there is a significant positive correlation between perpetration of C-IPV and F2F-IPV in all types examined and when examined separately for male and female participants. It should be noted that due to the fact that studies of sexual IPV were relatively few, the results might not be highly reliable.

Section IIb. Association Between Cyber Victimization and Face-to-Face Victimization

A total of 13,236 participants were assessed in the 16 studies included in our meta-analysis, with 2,269 men and 10,947 women, and with an average number of 882.40 participants in each study (*range*: 79 to 6,818). The mean age of participants was 22.79 ($SD = 4.15$) in each study. Most studies were conducted in the U.S. (71.43%), with studies also originating from Spain, Peru, and Israel. All studies were cross-sectional in nature.

As can be seen in Table 3, the pooled effect size for the association between victimization of cyber IPV and victimization of face-to-face IPV, across 148 effect sizes, was *Fisher's z* = 0.45 (95% CI [0.33, 0.57]), indicating that individuals who report victimization from cyber IPV also report victimization from face-to-face IPV. These positive correlations were significant for male (*Fisher's z* = 0.53, 95% CI [0.31, 0.74]) and for female participants (*Fisher's z* = 0.40, 95% CI [0.28, 0.52]). Homogeneity analyses indicated that the set of effect sizes was primarily homogenous: $\tau^2 = .08$.

Given the relative lack of heterogeneity, we conducted two moderation analyses for variables that were of interest a priori: sex and age. These variables were entered separately to bivariate meta-regression analyses. As can be seen in Table 4, the two moderators were not statistically significant. However, due to its empirical importance, we conducted analyses split by sex.

IPV victimization and sex. As can be seen in Table 3, all effect sizes were significant, indicating that there is a significant positive correlation between victimization by cyber IPV and face-to-face IPV in all types examined and when examined separately for male and female participants. It should be noted that due to the fact that studies of sexual IPV were relatively few, results might not be highly reliable.

Publication Bias Analysis

The traditional tools (e.g., funnel plots, Egger's regression, etc.) of publication analysis do not account for nested data, which is the data in the present study. Thus, we conducted a Robust Variance Estimation (RVE) meta-regression of the standard error against the effect size to explore the possibility of small study bias, or the potential for the meta-analysis results to be biased due to the omission of studies with small sample sizes and null/negative findings. This was conducted for the second section of our study. The regression models for perpetration and for victimization were not significant (see Table 5). Thus, these results

suggest the potential for small study bias in the effect sizes is minimal.

Discussion

The overarching aim of the current research was to investigate whether C-IPV is a separate phenomenon or strongly related to traditional F2F-IPV. To do so, we used a meta-analytic approach by investigating sex differences in the use of C-IPV, and C-IPV's associations to F2F-IPV. Overall, the study finds no significant sex differences between the average levels of different types of C-IPV victimization and between different types of C-IPV perpetration. Findings also show large effect sizes for the correlations between C-IPV and F2F-IPV perpetration and victimization, but sex did not impact the level of association.

Sex Differences in Types of C-IPV

In the first section of our study, we compare rates of C-IPV of males and females. Our meta-analysis does not find significant differences between sex in relation to all types of C-IPV. These results are in contrast to findings from a prior meta-analysis on cyber-bullying in which male participants were slightly more likely to engage in cyber-bullying behaviors than female participants among adolescents and young adulthood (Barlett & Coyne, 2014). However, our results support the empirical data in F2F-IPV literature pointing to an almost similar rate of men and women using violence (Stith et al., 2012; Straus, 2011, 2014). Moreover, our results support data of another meta-analysis on cyber dating abuse which found that being a girl or a boy is neither a risk nor a protective factor in the commission of, or victimization by, cyber dating abuse (Caridade & Braga, 2020). However, due to the low number of studies which examined the separate factors of cyber IPV, further studies are needed to suggest more strongly whether differences across gender exist as they do in other types of aggression. For instance, sexual aggression has been found to relate more to men while psychological aggression has been found more connected to women (Archer, 2000), which then can be perhaps correlated to the different types of cyber IPV.

Associations Between C-IPV and F2F-IPV

The second section of our results addresses whether and how cyber IPV relates to traditional F2F-IPV. The findings that emerge from examining the associations between these phenomena show positive large effect sizes for the correlations between cyber IPV and F2F-IPV, both for perpetration and victimization and also when analyzed separately by sex. This means that these two phenomena are highly connected. These findings indicate that being aggressive towards a partner in face-to-face IPV, increases the potential of being aggressive towards a partner in cyber IPV. Similarly, when a person reports being a victim of C-IPV, she or he has a significantly higher chance of also being a victim of F2F-IPV.

The large effect sizes of the associations between C-IPV and traditional F2F-IPV in our study also support the idea that C-IPV is associated with F2F-IPV, and that C-IPV may continue when partners are in close physical proximity (Draucker & Martsof, 2010; Marganski & Melander, 2018). Moreover, the motivation behind the perpetration of C-IPV may be the same as the motivation for using F2F-IPV: to control partner behavior (Melander, 2010a). This perpetration may also relate to a gender role norm which contributes to aggressive behavior among men (Gilbar et al., 2021).

Whereas the study results support the idea that cyber IPV is strongly associated with traditional IPV, using sex as a moderator in the association between cyber IPV and F2F-IPV both for victimization and perpetration was not significant in relation to all types of IPV. Thus, the associations between these two phenomena did not differ by sex. These results – together with the results showing no sex differences in mean rates – suggest that sex might not play a role in this kind of violence. More specifically, these results support the notion that C-IPV operates as indirect IPV (Borrajo et al., 2015) that may go beyond gendered physical strength differences between men and women. In other words, the fact that C-IPV is not based on a physical act may create C-IPV perpetration by women similar to that of men.

However, the results of this analysis are constrained due to the low number of studies which examined sex differences in this topic. Therefore, further studies are needed to answer the question posed of the role of sex in C-IPV (Melander, 2010b; Schnurr et al., 2013).

Current State of Diversity in the Literature and Suggestions for Further Research

Conducting this review of the literature has revealed not only the strength of the associations examined, but also the scope of the empirical literature at hand. Several issues are apparent, namely a range in gender, sexual orientation, geographical location, socio-economic status and education. In this study, we initially planned to include studies focusing on diverse populations, for instance, including individuals with diverse sexual and gender identities. However, to the best of our knowledge, only one study examined C-IPV specifically among those with a variety of sexual orientations – lesbian, gay, and bisexual individuals (Trujillo et al., 2020). Another study compared C-IPV among those with a same-sex orientation to those with a heterosexual orientation (Zerach et al., 2016). Although these studies included a sufficient number of participants to be included in a meta-analysis, two studies are insufficient to use for statistical calculations in a meta-analysis, which is based on a number of studies with the same kind of data. Additionally, no study has examined C-IPV *vis a vis* individuals with a non-binary gender. The lack of studies among the LGBTQ+ populations raises the need to increase efforts to study C-IPV among these populations. This is particularly essential as surveys and research suggest that LGBTQ+ individuals are at an increased risk of F2F-IPV and of C-IPV (Charak et al., 2019; Edwards et al., 2015). A related point concerns analysis by race and/or ethnicity. While the current literature does not permit analysis that addresses these constructs, we would like to note that addressing these characteristics in future studies might give an important cross-cultural element to our understanding of IPV. A further point pertaining to the scope of the literature is that of geographical location. Most studies are from the United States with only one study from a

low- and middle-income area (e.g., in the U.S.: 26 studies, and in Europe: 13, compared to Africa: 1 (Darko et al., 2019). Next, we note age and socio-economic limitations. Most studies within the meta-analysis examine C-IPV among youth and young adults. The mean age of participants in the meta-analysis was around 25 years of age. This suggests that the participants were part of student-based populations, which may, in turn, over represent relatively higher socio-economic status and higher education. Therefore, further studies should focus also on older individuals and those with a lower socio-economic status. Lastly, we note that, surprisingly, many of the studies which we included in the meta-analysis did not address sex or type differences, specifically regarding cyber sexual aggression and sexual assault; these studies reported on results of males and females together and/or without any division according to types of IPV. Further studies might be able to add knowledge by reporting on these divisions as well.

Limitations

Several limitations should be kept in mind when interpreting the present findings. As Brown & Hegarty (2018) suggested, the research method used to measure C-IPV is a significant factor for accurately describing the phenomenon. Thus, differences in measurement methods of the included studies call into question the averaging of results across different studies. Additionally, only some of the studies used validated measurements of cyber IPV (e.g., Watkins et al., 2018) and others used single item measures of cyber IPV perpetration and did not report the psychometrics of the questionnaire used (see Table 1). While the extent to which measurement differences could affect the present findings remains unclear, further research should only include those studies with validated methods of measurement for C-IPV (Taylor & Xia, 2018), and that were based on a clear and accepted definition of the phenomenon. In the current study, while realizing these limitations, we (1) addressed the quality of each study; and (2) removed a study which had a low quality of

methods based on our application of our study-quality criteria.

A further limitation of our results lies in the limited scope of the studies used and their failure to address diverse populations (e.g., populations with various gender identities and race), in the limited attention given to cyber sexual aggression and cyber sexual assault, and in the inability to examine some of the results by sex due to the small number of studies.

While this is not a limitation of the current study – but rather of the current state of the literature – it is important to note this, as it reflects limitations of the generalizability of our results.

Practical Implications

An impressive number of research reports converge to conclude that C-IPV is a manifestation of aggression between partners (Taylor & Xia, 2018). Hence, this meta-analysis could be informative to both practitioners and policy makers. Given the large effect sizes (0.27-0.61) of the associations between C-IPV and F2F-IPV, cyber IPV should be adequately addressed through effective preventive programs. Specifically, we need to underscore that while the present meta-analysis found significant effect sizes linking F2F-IPV to C-IPV, a large effect size still does not mean these two phenomena are essentially the same. Thus, traditionally, efforts have not focused on screening individuals who could be at risk of being a perpetrator or victim of C-IPV among those who recently engaged in perpetrating or being victimized by F2F-IPV. This should change. Additionally, the majority of programs helping to prevent C-IPV are universal programs originally designed for F2F-IPV victims (Cheng et al., 2019). Our analysis highlights that when assessing F2F-IPV, there is also a need to assess cyber IPV, and to ultimately integrate C-IPV prevention into IPV-prevention programs. In addition, based on our results – showing no significant differences between the sexes regarding the associations between the two forms of IPV – interventions focusing on cyber IPV should include both men and women (Taylor & Xia, 2018). Moreover, the high

correlation between C-IPV and F2F-IPV may raise the issue of whether the gender role norm impacts the use of cyber aggression by men. Therefore, prevention and response programs that focus primarily on face-to-face IPV and gender role norm should also relate to C-IPV. This is particularly relevant because focus upon sexist beliefs and attitudes has been found to be effective in prevention intervention of dating C-IPV (Galende et al., 2020).

Additionally, as a preventive strategy, technology developers can focus their efforts on creating applications or social media platforms that are more secure and user-friendly, and that enable victims to better protect themselves (i.e., easier features in social media to protect privacy; Al-Alosi, 2020; Dragiewicz et al., 2019). Specifically, given that technology/online spaces can be used to control and threaten a partner, clinicians could work collaboratively with technology consultants to assist victims of cyber IPV in learning secure and private ways of using technology (Freed et al., 2019), and to develop online safety strategies for victims (Woodlock et al., 2020). Third, there is need for the creation of specific regulations to protect victims of C-IPV and to provide educational training about C-IPV. This includes those who interface with victims of F2F-IPV, within, for example, law enforcement agencies and judicial tribunals (Dragiewicz et al., 2019).

In summary, this study is the first to investigate cyber IPV using a meta-analytic approach. Overall, the study results introduce important findings regarding the presentation of this phenomenon as one separate from, albeit related to, traditional F2F-IPV. While no sex differences between the different types of C-IPV have been found, further and broader studies may find sex differences within C-IPV and between C-IPV and F2f-IPV. More studies are also needed that focus on heterogeneous populations with specific attention paid to the different types of cyber IPV.

Critical findings

- No sex differences were found between the average levels of different types of C-IPV victimization and between different types of C-IPV perpetration.
- The study showed positive large effect sizes for the correlation between C-IPV and F2F-IPV perpetration and victimization.
- In both perpetration and victimization, sex did not impact the level of association.

Implications of the review for practice, policy, and research

- The results of this study raise the need to put effort into preventing and treating C-IPV.
- The findings have implications for preventive strategies in that IPV interventions should also focus on alleviating instances of C-IPV, both for men and women.
- Based on the high correlation between C-IPV and F2F-IPV, interventions should include changing sexist beliefs and attitudes.

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Table 1*Characteristics of all studies included in the meta-analysis on C-IPV*

Study	Country	N	Age (M /SD)	Female	Male	Instrument	Cyber IPV	F2F IPV
Wood et al., 2018	USA	6818	25.27/8.11	6818	0	Cyberaggression relationship scale Zweig et al., 2013	4	4
Ramos et al., 2017	USA	359	20.34/1.54	181	178	How Friends Treat Each Other Questionnaire Bennett et al., 2011	4	-
Bui and Pasalich, 2018	AUSTRALIA	200	22.3/5.6	49	151	Cyber Psychological Abuse (CPA) Leising and Giumetti, 2014	3	2
Woodlock, 2014	AUSTRALIA	44	35 / (N/A)	44	0	Created by author "Women's Experiences of Stalking Methods via Mobile Technologies"	4	1,3
Gilchrist et al., 2017	BRAZIL	280	43/10.6	0	280	Authors created their own questions Woodlock, 2013	4	-
Crane et al., 2018	MTURK	100	40.36/12.94	40	60	Modified version of Wright Wright, 2015	4	1,3,4
Brem et al., 2017	USA	216	34.25/10.61	0	216	Controlling Partners Inventory (CPI) Burke et al., 2011	4	1,2
Schnurr et al., 2012	USA	296	MALE 20.94/2.83 FEMALE 19.46/1.49	148	148	Adapted from Draucker & Martsof Draucker and Martsof, 2010	4	1,2,4
Borrajo et al., 2015	SPAIN	788	22.72/4.9	609	175	Cyber Dating Abuse Questionnaire (developed by authors) Borrajo et al., 2015	4	1,2
Lu et al., 2018	USA	641	19.1/0.79	444	197	Cyber Dating Abuse Victimization Picard, 2007; Zweig et al., 2013	4	-
Morelli et al., 2018	ITALY	817	19.41/1.509	572	245	Modification of CADRI (Conflict in Adolescent Dating Relationships Inventory)	3,4	2,3,4

Penado-Abilleira and Rodicio-García, 2018	SPAIN	79	MALE 18.47/0.909 FEMALE 18.25/0.5	36	43	(Wolfe, 2001) The authors created their own measurement by modifying measurements used in studies by other researchers (For reference: Baker and Carreno, 2016; Borrajo et al., 2015; Zweig et al., 2013)	4	1,2,3,4
Watkins et al., 2018	USA	397	34.4/11.4	241	154	The Cyber Aggression in Relationships Scale Watkins, 2018	1,2,3	1,2,3
Marganski and Melander, 2018	USA	540	19.5/1.6	394	145	NO NAME	4	1,2,3,4
Borrajo et al., 2015	SPAIN	433	20.4/2.1	260	104	NO NAME Borrajo et al., 2015	4	1,2
Madlock and Westerman, 2011	USA	392	21.56/2.52	N/A	N/A	Bergen Bullying Index Einarsen et al., 1994	4	-
López-Cepero et al., 2018	PERU	392	21.87/4.2	295	97	DIPVQ López-Cepero et al., 2018	4	1,2,3,4
Villora et al., 2019	SPAIN	1041	20.51/3	N/A	N/A	The Cyber Dating Abuse (CDA) Questionnaire Borrajo et al., 2015	4	-
Darko et al., 2019	GHANA	1204	44.8/13.4	602	602	Direct Indirect Aggression Scale for Adults Österman and Björkqvist, 2009	4	1,4
Dainton and Stokes, 2015	USA	189	21.36/2.3	142	46	Online monitoring was measured following the methods of Utz and Beukeboom Utz and Beukeboom, 2011	4	-
Sloane et al., 2011	USA	804	19.2	532	272	No specific question prepared for this study Burke, 2011	4	-
Marcum et al., 2016	USA	890	---	249	640	No specific question prepared for this study Marcum et al., 2017	2	-
Cho and Huang, 2017	USA	338	20.14/3.21	216	122	No name mentioned Southworth et al., 2007	3	1,2,3
Zapor et al., 2017	USA	345	19.1/1.3	202	143	Cyber Psychological Abuse Scale Leisring and Giumetti, 2014	3	1,2
Borrajo et al., 2015	SPAIN	656	22.58/4.8	518	137	Online Dating Abuse Borrajo et al., 2015	4	2

Watkins et al., 2020	USA	267	18.96/1.99	199	66	The Cyber Aggression in Relationships Scale Watkins et al., 2018	1,2,3	1,3
Van Ouytsel et al., 2018	BELGIUM	311	18.47/0.72	219	90	Digital controlling behaviors Borrajao et al., 2015	2	-
Melander and Tyler, 2010	USA	490	21/1.7	296	194	22 items; constructed by author: Cyberaggression between intimate partners Melander, 2010	4	1,3,4
Duran and Martinez-Pecino, 2015	SPAIN	335	-	180	155	Peer victimisation scale adapted for romantic relationships Buelga et al., 2010 Duran and Martinez-Pecino, 2015	4	-
Dainton and Stokes, 2015	USA	189	21.36/2.3	142	46	Four items from the Muisse et al.,2009 Social Media Jealousy scale using Utz and Beukeboom (2011) method	4	-
Bevan, 2018	USA	474	22.78/5.24	370	104	FMRTI jealousy and surveillance Brem, 2015	4	-
Melander and Hughes, 2018	USA	490	21/1.7	-	-	Authors created the scale Melander, 2010	4	-
Dardis et al., 2019	USA	318	19.02/1.19	310	0	CPI-S Burke, 2011	4	1,2,3,4
Lindsay et al., 2016	USA	337	21.8/5.7	254	83	Developed from previous online harassment study Finn, 2004	4	4
Dardis, 2015	USA	1156	-	771	383	CPI-S Burke, 2011	4	1,2,3,4
Wright, 2017	USA	600	20.68/0.61	324	276	Items were adopted from prior studies; Linder et al., 2002 Wright, 2015	4	4
Dardis and Gidycz, 2019	USA	1167	-	799	388	CPI-S Burke, 2011	4	1,2,3,4
Bennett et al., 2011	USA	361	20.1/1.08	118	243	Previous research/focus groups	2,4	1,2,4
Sargent, 2016	USA	341	MALE 18.35/0.61 FEMALE	171	170	Partner Cyber-abuse Questionnaire (PCAQ) Wolford et al., 2015	4	2

Drouin et al., 2015	USA	480	18.32/0.99 20.6/4.73	320	160	Adapted version of the 34-item Sexual Coercion in Intimate Relationships Scale SCIRS Goetz and Shackelford, 2010	1	1,3,4
Martinez-Pecino and Durán, 2018	SPAIN	184	MALE 119.82/2.28 FEMALE 20.14/2.43	113	71	Scale of Victimization Buelga, 2010	4	-
Cardenas et al., 2018	MEXICO	444	MALE 20.39/2.173 FEMALE 19.82/2.054	348	96	El Cyber Dating Abuse Questionnaire Borrajo et al., 2015	4	-
Zerach, 2016	ISRAEL	347	MALE 27.86/6 FEMALE 27.45/6.54	202	145	Cyber bullying offending Hinduja and Patchin, 2013	4	-
Machimbarrena, 2018	SPAIN	35	MALE 18.308/0.855 FEMALE 18.056/0.236	18	17	Cyber Dating Abuse Questionnaire Borrajo et al., 2015	4	-

Table 2*Effect sizes of sex differences in mean levels of cyber perpetration and cyber victimization*

Sex differences	ES	k	Cohen's d	SE	Dfs *	p- value	LL	UL	Tau2	Rho	Corr.	LL	UL
Sex diff. - overall model - perpetration - cyber	40	16	0.01	0.07	4.29	0.857	-0.17	0.19	<0.0001	0.80	0.01	-0.17	0.19
Sex diff. - overall model - victimization - cyber	80	22	-0.18	0.19	4.71	0.382	-0.67	0.31	<0.0001	0.80	-0.18	-0.58	0.30

Notes. ES = number of effect sizes. *k* = number of studies. ^c When degrees of freedom <4, the associated *p*-value is unstable.

Table 3*Effect sizes by category and by major constructs*

Correlation between cyber and face-to-face	ES	k	Fisher's z	SE	Dfs *	p-value	LL	UL	Tau2	Rho	Corr.	LL	UL
Perpetration													
General													
Correlation perpetration of cyber IPV and face-to-face IPV	148	15	0.43	0.04	13.74	<0.001	0.34	0.52	0.03	0.80	0.40	0.33	0.48
Males: Correlation perpetration of cyber IPV and face-to-face IPV	80	11	0.43	0.05	9.79	<0.001	0.31	0.54	0.03	0.80	0.40	0.30	0.49
Females: Correlation perpetration of cyber IPV and face-to-face IPV	59	9	0.37	0.06	7.84	<0.001	0.23	0.52	0.04	0.80	0.35	0.22	0.47
Sexual													
Sexual: Correlation perpetration of cyber IPV and face-to-face IPV	10	5	0.33	0.09	3.99*	0.022	0.08	0.59	0.05	0.80	0.32	0.08	0.53
Sexual, males: Correlation perpetration of cyber IPV and face-to-face IPV	5	5	0.40	0.14	3.98*	0.049	0.00	0.79	0.07	0.80	0.38	0.00	0.66
Sexual, females: Correlation perpetration of cyber IPV and face-to-face IPV	5	5	0.27	0.07	3.98*	0.016	0.08	0.46	0.02	0.80	0.26	0.08	0.43
Psychological													
Psychological: Correlation perpetration of cyber IPV and face-to-face IPV	25	9	0.46	0.07	7.99	<0.001	0.30	0.63	0.04	0.80	0.43	0.29	0.56
Psychological, males: Correlation perpetration of cyber IPV and face-to-face IPV	17	6	0.52	0.09	4.99	0.002	0.30	0.74	0.05	0.80	0.48	0.29	0.63
Psychological, females: Correlation perpetration of cyber IPV and face-to-face IPV	5	5	0.47	0.12	4.00	0.017	0.14	0.79	0.05	0.80	0.43	0.14	0.66
Physical and stalking													

Face-to-face physical and cyber stalking: perpetration	14	8	0.36	0.08	6.78	0.003	0.16	0.55	0.03	0.80	0.34	0.16	0.50
Face-to-face physical and cyber stalking: males perpetration	7	7	0.35	0.09	5.84	0.010	0.12	0.57	0.03	0.80	0.33	0.12	0.51
Face-to-face physical and cyber stalking: females perpetration	6	6	0.44	0.14	4.87	0.025	0.08	0.79	0.04	0.80	0.41	0.08	0.66
Victimization													
General													
Correlation victimization by cyber IPV and face-to-face IPV	148	15	0.45	0.05	13.91	<0.001	0.34	0.57	0.06	0.80	0.42	0.33	0.51
Males: Correlation victimization by cyber IPV and face-to-face IPV	58	9	0.53	0.09	7.99	<0.001	0.31	0.74	0.12	0.80	0.48	0.30	0.63
Females: Correlation victimization by cyber IPV and face-to-face IPV	72	11	0.40	0.05	9.86	<0.001	0.28	0.52	0.04	0.80	0.38	0.27	0.48
Sexual													
Sexual: Correlation victimization by cyber IPV and face-to-face IPV	13	6	0.48	0.14	5.00	0.017	0.13	0.83	0.20	0.80	0.45	0.13	0.68
Sexual, males: Correlation victimization by cyber IPV and face-to-face IPV	7	6	0.61	0.23	5.00	0.045	0.02	1.19	0.34	0.80	0.54	0.02	0.83
Sexual, females: Correlation victimization by cyber IPV and face-to-face IPV	6	5	0.37	0.06	3.99*	0.003	0.21	0.54	0.02	0.80	0.36	0.21	0.49
Psychological													
Psychological: Correlation victimization by cyber IPV and face-to-face IPV	16	7	0.47	0.07	5.98	0.001	0.30	0.65	0.03	0.80	0.44	0.29	0.57
Psychological, males: Correlation victimization by cyber IPV and face-to-face IPV	8	6	0.51	0.08	4.99	0.001	0.31	0.71	0.04	0.80	0.47	0.30	0.61
Psychological, females: Correlation victimization by cyber IPV and face-to-face IPV	7	5	0.53	0.10	3.99*	0.006	0.25	0.81	0.05	0.80	0.49	0.25	0.67
Physical and stalking													

Face-to-face physical and cyber stalking: victimization	13	8	0.46	0.07	6.76	<0.001	0.29	0.63	0.03	0.80	0.43	0.29	0.56
Face-to-face physical and cyber stalking: males victimization	6	6	0.51	0.07	4.88	0.001	0.34	0.68	0.02	0.80	0.47	0.33	0.59
Face-to-face physical and cyber stalking: females victimization	6	6	0.44	0.12	4.90	0.014	0.14	0.75	0.05	0.80	0.42	0.14	0.64

Note: When degrees of freedom <4, the associated p -value is unstable.

Table 4*Moderation analysis*

Effect Modifier	ES	(K)	b	dfs	P value	LL 95% CI	UL 95% CI	Constant	(dfs)	Tau ²
Correlation perpetration of cyber IPV and face-to-face IPV										
sex	139	11	-0.04	9.53	0.40	-0.146	0.06	0.46	9.68	0.03
Age	120	13	0.00	5.09	0.99	-0.019	0.02	0.42	7.93	0.03
Correlation victimization by cyber IPV and face-to-face IPV										
Sex	130	12	-0.08	10.43	0.52	-0.328	0.18	0.58	8.56	0.08
Age	132	13	-0.01	2.32	0.52	-0.050	0.03	0.61	3.67	0.06
Correlation sexual perpetration by cyber IPV and face-to-face IPV										
Sex	10	5	-0.13	3.98	0.37	-0.482	0.23	0.53	3.98	0.04
Correlation sexual victimization by cyber IPV and face-to-face IPV										
Sex	13	6	-0.19	4.89	0.31	-0.615	0.24	0.75	4.93	0.21
Correlation psychological perpetration by cyber IPV and face-to-face IPV										
Sex	22	6	-0.05	4.88	0.47	-0.223	0.12	0.57	4.93	0.05
Correlation psychological victimization by cyber IPV and face-to-face IPV										
Sex	15	6	0.06	4.89	0.61	-0.229	0.35	0.41	4.91	0.05
Correlation perpetration stalking cyber IPV and physical face-to-face IPV										
Sex	13	7	0.12	5.81	0.27	-0.128	0.38	0.20	5.76	0.04
Correlation victimization stalking cyber IPV and physical face-to-face IPV										
Sex	12	7	0.02	5.87	0.90	-0.411	0.46	0.46	5.20	0.04

Notes. ES = number of effect sizes. *k* = number of studies. ^c When degrees of freedom <4, the associated *p*-value is unstable.

Table 5*Results of RVE meta-regression for the assessment of small study bias*

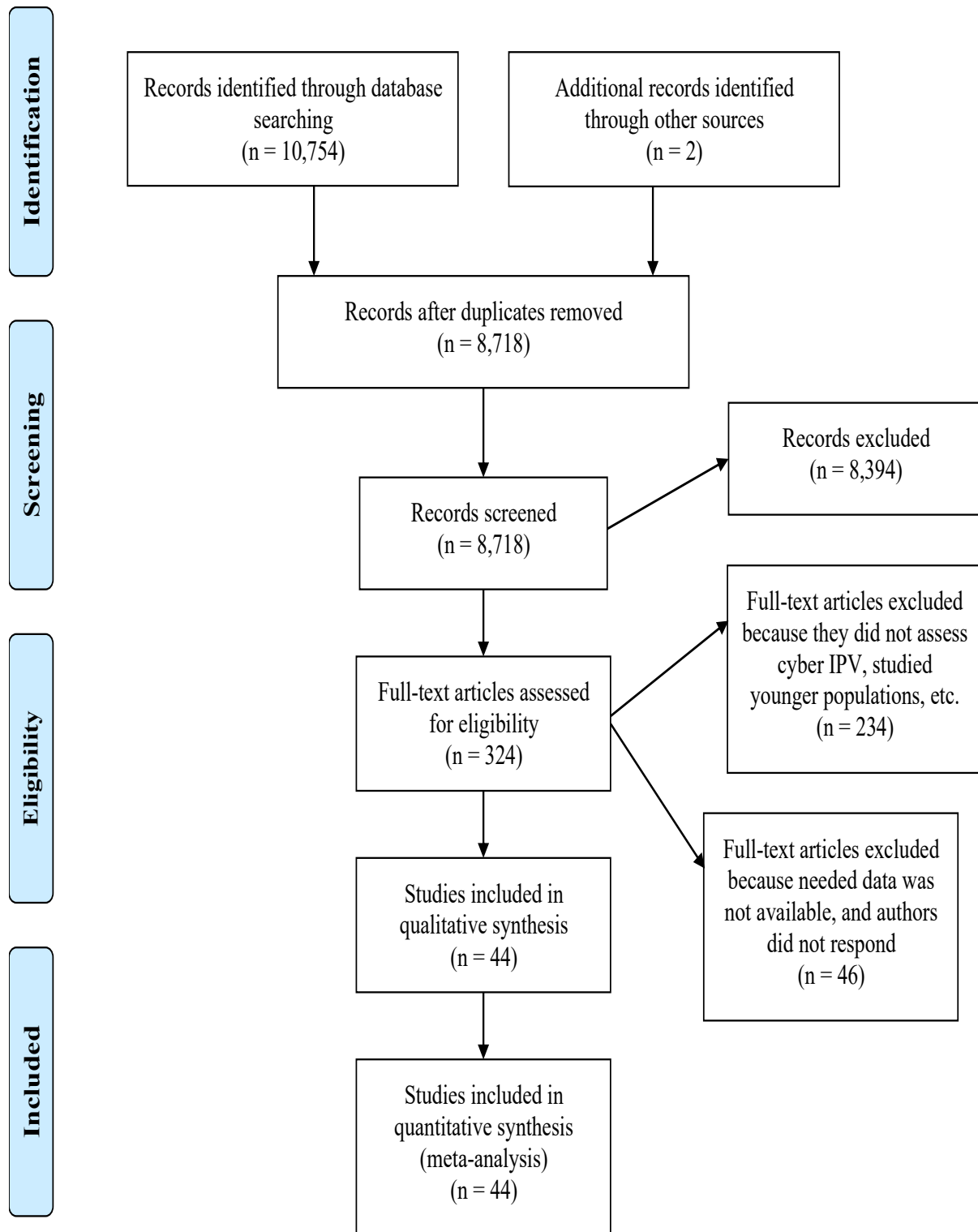
	ES	k	ES	SE	Constant	dfs	p value	LL	UL	Tau2	Rhoa
Publication bias perpetration	148	15	3.11	1.58	0.21	3.51	0.131	-1.54	7.76	0.03	0.80
Publication bias victimization	148	15	3.62	1.13	0.22	2.73	0.056	-0.20	7.43	0.05	0.80

Notes. ES = number of effect sizes. *k* = number of studies. ^c When degrees of freedom <4, the associated *p*-value is unstable.

Table 6*Studies Quality*

Study	Defined Sample	Representative Sample	Controls in Analysis	Predictors Measured	Completion Rate	Demographic Info	Definition Provided	Measure	Missing data	Cyber Details	Published studied	Total
Dainton and Stokes, 2015	1	0	0	1	0	1	0	1	0	0	1	5/11
Watkins et al., 2018	1	0	1	1	0	1	1	1	0	1	1	8/11
Marganski et al., 2018	1	0	1	1	0	1	0	1	0	1	1	7/11
¹ Borrajo et al., 2015	1	0	1	1	0	0	1	1	0	1	1	7/11
Madlock et al., 2011	1	0	0	0	1	0	0	1	0	1	1	5/11
López-Cepero et al., 2018	0	0	1	1	0	0	1	1	0	1	1	6/11
Villora et al., 2019	1	0	0	0	0	0	1	1	1	0	1	5/11
Darko et al., 2019	1	0	1	1	0	1	0	1	0	0	1	6/11
Marianne et al., 2015	1	0	0	0	0	1	1	1	0	0	1	5/11
Burke et al., 2011	1	0	1	0	0	1	0	1	0	0	1	5/11
Marcum et al., 2017	1	1	0	0	1	1	0	0	0	0	1	5/11
Cho et al., 2017	1	1	0	1	1	1	0	0	0	0	1	6/11
Zapor et al., 2017	1	0	1	1	0	1	1	1	0	0	1	7/11
Borrajo et al., 2015	1	0	1	1	0	1	1	1	0	0	1	7/11
Watkins et al., 2020	1	0	1	1	0	1	1	1	0	1	1	8/11
Van Ouytsel et al., 2018	1	0	1	0	0	0	1	1	0	0	1	5/11
Dardis et al., 2019	1	1	0	1	0	1	1	1	1	0	1	7/11
Lindsay et al., 2016	0	1	1	0	1	1	0	0	1	0	1	6/11
Dardis, 2015	1	1	0	1	0	0	1	1	1	0	0	6/11
Wright, 2017	1	1	0	1	0	1	1	1	0	0	1	7/11
Dardis et al., 2019	1	1	1	1	0	0	1	1	1	0	1	8/11
Bennett et al., 2011	1	1	1	1	0	1	1	1	1	0	1	9/11
Sargent et al., 2016	1	1	1	1	0	1	1	1	0	0	1	8/11
Drouin et al., 2015	1	1	1	1	0	1	1	1	0	0	1	8/11
Martinez-Pecino et al., 2019	1	1	1	0	0	1	1	1	0	0	1	7/11
Cardenas et al., 2018*	1	1	1	1	0	1	1	1	0	0	1	8/11
Zerach et al., 2016	1	1	1	0	0	1	1	1	0	0	1	6/11
Machimbarrrena et al., 2018	1	1	1	0	0	1	1	1	1	0	1	8./11
Melander and Tyler, 2010	1	0	1	1	0	1	1	1	0	1	0	7/11
Duran and Martinez-Pecino, 2015	1	0	1	0	0	1	0	1	0	0	1	5/11
Bevan, 2018	1	0	0	0	0	1	1	1	1	0	1	5/11
Melander and Hughes, 2018	1	0	0	0	0	1	1	0	0	0	1	4/11
Dainton and Stokes, 2015	1	0	0	0	0	0	1	1	0	0	1	4/11
Wood et al., 2018	1	0	0	1	1	1	1	0	0	0	1	6/11
Ramos et al., 2017	1	0	0	0	0	1	1	1	1	1	1	6/11
Bui and Pasalich, 2018	1	0	0	0	0	1	1	1	0	0	1	6/11
Woodlock, 2016	0	0	0	0	0	1	1	0	1	0	1	4/11
Gilchrist et al., 2017	0	0	0	0	0	1	1	0	0	0	1	3/11
Crane et al., 2018	1	0	0	1	1	1	1	1	0	1	1	8/11
Brem et al., 2017	0	0	0	1	1	1	1	1	0	0	1	6/11

Schnurr et al., 2012	1	0	1	1	0	1	1	1	0	1	1	8/11
Borrajó et al., 2015	1	0	0	1	0	1	1	1	0	0	1	6/11
Lu et al., 2018	0	0	0	0	0	1	1	1	0	0	1	4/11
Morelli et al., 2018	0	0	1	1	0	1	1	1	0	0	1	6/11
Penado-Abilleira et al., 2018	0	0	1	1	0	1	0	1	0	0	1	5/11

Figure 1*PRISMA Flow Diagram*

Appendix

Criteria for Assessing Study Quality:

1. Defined Sample
2. Representative Sample
3. Controls in Analysis
4. Predictors Measured
5. Completion Rate
6. Demographic Information
7. Definition Provided
8. Measurement
9. Missing data
10. Cyber Details
11. Published studied

Note: Y/N for each study

Description of Scoring:

1. **Defined Sample**

a. Does the study have a defined sample based on the following elements?

- Defined eligibility and exclusion criteria
- Age range/cutoffs
- An adequate description of the recruitment process

The study must meet at least two of the above elements to receive a score of 1.

Yes = 1; No = 0

2. **Representative Sample**

Is the study sample representative of the specific population that it draws from? If representativeness is unspecified, score as 0.

Yes = 1; No = 0

3. **Controls in Analysis**

Does the sample include details on cyber IPV per Sex?

Yes = 1; No = 0

4. **Predictors Measured**

Does the study measure and report findings on at least one F2F-IPV rather than C-IPV?

Yes = 1; No = 0

5. **Completion Rate**

Does the study report a completion rate (i.e. the number or percentage of participants who completed the study)?

Yes = 1; No = 0

6. **Demographic Information**

Does the study provide adequate demographic information? The study must report at least the sample mean age and one other element (e.g., Sex, ethnicity rate).

Yes = 1; No = 0

7. **Definition Provided**

Is cyber behavior clearly defined? The study must include clear information on the following in order to receive a score of 1:

- Cyber abuse type (any definition of cyber type)

8. **Measures**

If the study reports Reliability (Cronbach's alpha $>.70$) validity (validated previously) it scores 1. It scores 0- if measures are not reported or are inadequate.

9. **Missing data**

The study must include clear information on one of two of the following in order to receive a score of 1.

- Reporting of the percentage of missing or no data
- Missing data is not more than 5% or reported missing at random.

Yes = 1; No = 0

10. **Cyber Behavior**

Does the study provide details on cyber behavior type? For example, are prevalence rates provided for groups or specific cyber details? All the following subtypes of cyber IPV should be reported to receive a score of 1.

- Cyber frequency, by cyber type - stalking, psychological, sexual

Yes = 1; No = 0

11. **Publication Status**

Is the study published (peer-reviewed journals, book chapters)? Yes = 1; No = 0 (dissertation is not a published study).

The individual quality score items are summed to generate a total score for each study. Total scores range from 0 to 11. Articles were given a score of 0 ("No") or 1 ("Yes").

Each criterion was summed to give a total score out of 11.

The classification system used, identified studies as low (< 4), moderate (4-6), or high quality (> 7). Studies deemed to have low methodological quality were removed from analyses.

Author Biographies

Ohad Gilbar, PhD, is a Senior Lecturer at the School of Social Work and Social Welfare at the Hebrew University. Dr. Gilbar – both in terms of research and clinical work – has focused on the contribution of traumatic event exposure, PTSD/CPTSD, and gender in face-to-face and cyber intimate partner violence. Additionally, he works on developing and validating measurements to assess these issues.

Ruby Charak, Ph.D., is an Associate Professor in the Department of Psychological Science and Director of the Adversities in Childhood and Trauma Studies (ACT) Lab at the University of Texas Rio Grande Valley. Her research encompasses the identification of adverse interpersonal processes, including child maltreatment, polyvictimization, cyber IPV, and traumatic stress reactions, such as PTSD in adolescents and emerging adults.

Oscar Trujillo, B.S., is a research assistant at the Adversities in Childhood and Trauma Studies (ACT) Lab at the University of Texas Rio Grande Valley. His research interests include interpersonal violence with a focus on cyber IPV and traumatic stress reactions such as PTSD.

Jorge I. Cantu, M.A., is a PhD Clinical Psychology student and graduate research assistant at the Adversities in Childhood and Trauma Studies (ACT) Lab at the University of Texas Rio Grande Valley. His research interests include interpersonal violence – childhood maltreatment, face-to-face and cyber intimate partner violence, victimization – and their association with psychopathology and with the risk and protective factors of the associations.

Valeria Cavazos, M.A., has recently graduated with a Master of Arts in Clinical Psychology at the University of Texas Rio Grande Valley. Her research interests include mental health stigma, intimate partner violence between college students, as well as cyber intimate partner violence, child trauma, distress tolerance, and social judgement.

Iris Lavi, PhD, is a lecturer at the University of Bath (U.K.) and at the University of Haifa (Israel). She is interested in parenting, child development, and positive psychology; she studies processes that lead to children's resilience and well-being. She explores maltreatment prevention and parental influence on children, while examining emotional processes and various stressors.