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How bad is bad? Perceptual differences in the communication of severity in intimate partner violence

Sverker Sikström [1]✉ & Mats Dahl[1]

Accurate communication of the severity of violence in intimate relations is essential for the appropriate evaluation of offenders and victims in contexts such as court trials, custody cases, and the continuation of relationships. Using a new paradigm, this study quantifies discrepancies in how the severity of violence is communicated in texts written by offenders, victims, and bystanders who witness violence. The study was conducted in two phases, where participants were randomly sampled from the same population to participate in either Phase 1 or Phase 2. In the first Phase, witnesses (narrators) provided nine narratives about self-experienced intimate partner violence and rated the violence's severity; then in the second Phase non-witnesses (recipients) read all the narratives and rated the severity of the violence. Four types of perceptual differences (calibration, accuracy, gender, and role perceptual differences) were identified when rating the severity of three types of violence (psychological, physical, and sexual) as communicated by three types of witnesses (victims, offenders, and bystanders) of violence in heterosexual, romantic relationships. Several novel findings were made related to a strong perceptual difference in calibration, i.e., a tendency for the recipient to rate the violence more severely than the narrator, where this effect was mainly found for victims and bystanders, but not for offenders. Also, the calibration effect was largely seen in the sexual and physical, but not psychological, narratives. The recipients' accuracy was considerably lower for psychological rather than sexual violence. Finally, the validity of the method was confirmed by replicating earlier findings on perceptual differences in roles where witnesses rated violence more severely than victims or offenders and women were rated more severely than men, which was especially true for male raters. These results suggest systematic perceptual differences in severity ratings and may have substantial implications for victims and offenders in real-life settings. These findings may potentially be used to ameliorate the negative effects of perceptual differences.

[1] Department of Psychology, Lund University, Lund 22100, Sweden. ✉email: sverker.sikstrom@psy.lu.se

Violence in interpersonal relations, both physical and psychological, is continuously communicated between people experiencing violence and persons evaluating its severity. A crucial question here is whether the experiencer and evaluator agree on how serious the violence is. A poor agreement could have strong implications for the involved partners. An overestimation of the violence may have legal, or interpersonal, implications for the offender, whereas an underestimation may ignore the risks to the victim. Few controlled studies have been conducted on the degree of mismatch in the communication of interpersonal partner violence (IPV). This manuscript suggests a method for measuring perceptual differences in the severity of IPV, where we compare autobiographical events of physical, sexual, and psychological IPV from male and female witnesses, victims and offenders.

Forms of IVP and prevalence

Intimate partner violence (IPV) is defined as "any behavior within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship" (World Health Organization, 2020). The intimate partner can be anyone from a dating partner to a spouse and refers to both current and former relationships. The consequences of IPV range from health problems regarding both victims and perpetrators to social and behavioral issues (Spencer et al., 2019; World Health Organization, 2020). According to the Office for National Statistics' (2019) latest self-report measures, 4.2% of the population (aged 16 to 74 years) experienced domestic abuse by a partner in the UK during 2018. Most of the victims were women. The World Health Organization (2020) states that the UK lifetime prevalence for sexual violence by a partner is 16%, whereas the lifetime prevalence for physical abuse by partner is 25%. When considering psychological violence, the lifetime prevalence reaches 34%.

Statistics from the Office for National Statistics (Office for National Statistics, 2019) shows that amongst the 2.4 million adults that experienced domestic abuse in 2018, 1.6 million were women and 786 000 were men. According to the Centers for Disease Control and Prevention (CDC, 2020), about 41% of the female IPV survivors experienced some form of physical injury, whereas the statistics for male victims was 14%. The statistics also show that women were more often than men subjected to psychological and sexual violence (Office for National Statistics, 2019). However, a meta-analysis by Archer (2000) relayed that women were more likely than men to use acts of aggression, whereas male perpetrators were more likely to cause injury (Archer, 2000). The latest statistics from the Office for National Statistics (2019) even show that there were more male than female victims of physical IPV in the UK during 2018 (Office for National Statistics, 2019).

In fact, statistics on physical IPV worldwide have shown that women and men often have equal rates of reported physical violence, especially in areas or countries with a higher rate of gender equality (Esquivel-Santoveña & Dixon, 2012). Furthermore, research on victims of IPV showed that psychological violence was the most common commonly reported type of violence for both genders, followed by physical and, lastly, sexual violence (Office for National Statistics, 2019; Machado et al., 2016).

Generally, IVP is divided into physical violence, sexual violence, and psychological violence. Physical violence in IPV includes behavior such as kicking, pushing, slapping, and beating with the intention of inflicting physical harm (CDC, 2020). Much of existing research regarding IPV focuses on physical violence, possibly because the consequences are explicit and obvious (Hammock et al., 2017). Physical violence can include sexual aspects. CDC (2020) defines sexual violence as when a partner either forces or attempts to force sexual contact, including both sexual acts and touching, when the other partner does not or cannot consent. This definition is, however, not without complications and not commonly accepted and used. As pointed out by Bagwell-Gray, Messing and Baldwin-White (2015), research about intimate partner sexual violence (IPSV) lacks both a commonly used terminology and consensus regarding what should be reported as sexual violence (for example, rape versus sexual coercion). This leads to inconsistent studies and difficulties estimating the effects and consequences of IPSV (Bagwell-Gray et al., 2015). Another problem from a legal point of view with is that IPSV sometimes, but not necessarily, includes physical violence, with obvious physical consequences (e.g., bruises). When the physical effects of violence are present (e.g., bruises, broken bones, cuts) they can often be spotted by a recipient and are fairly easy to document and use as evidence in a legal context (Hammock et al., 2017), which is not the case with psychological effects.

Psychological violence includes behavior such as threats and intimidation, humiliation, insults, scorn, isolating a partner from their social network, constantly monitoring a partner, and/or restricting a partner's finances or medical care with the intention to threaten, humiliate, and control (financially and socially) the victim (CDC, 2020; Follingstad, 2009). These types of abuse are probably more common than the physical ones, but not as visible, something that makes it difficult to determine when the behavior crosses the line from being inept or unskilled to abusive. Also, in many cases, to be able to perceive a non-physical act as violent, the act itself needs to have been conditioned with either emotional pain or other negative consequences. In other words, it is considered a second-order (or indirect) reinforcer (Jara et al., 2006). For example, a raised voice in a certain context or a certain household might be perceived as incredibly threatening, whereas in a different context or household, this might be a common, nonthreatening occurrence signaling passion rather than anger. Hence, it harder to document and more difficult to use as evidence in a legal context. Nevertheless, as shown by Follingstad et al. (1990), the effects of psychological violence can be more devastating and long lasting than the effects of physical abuse.

Perceptual differences and communication of IPV

Perceptual differences are commonly caused by individual variations in how information is processed. The perceptual differences can, in turn, can be seen as manifestations of various forms av cognitive biases, heuristics and other forms of mental short-cuts. Since the seminal work of Tversky and Kahneman (1974), a substantial body of research has shown that individuals employ various forms of heuristics and mental short-cuts to ease the burden of information processing, which sometimes lead to flawed or erroneous evaluations and decisions. The origin of most biases is, in various ways, linked to the history and past experience of the individual, which, in turn, affects and molds the cognition of the individual, and this is eventually manifested in differences in perception. These differences are individual variations of how the world is perceived and how it influences the decision made when interacting in a social context (Estrada–Reynolds et al., 2015). Many of the differences are interactions of deeply rooted cultural beliefs and norms and therefore pervasive. Media is, of course, of great importance in shaping and maintaining public belief. Savage et al. (2022) found a gender dependent difference in how the media has framed IPV, where female and male perpetrators are depicted differently.

Similar findings were done by Sellars et al. (2014), who found women to be more often portrayed as acting in self-defense then men when the same type of IPV occurred. Carlyle et al. (2014) found that women were presented as more emotional and in need of greater assistance when acting as perpetrators compared to men. Another example of a factor affecting evaluations of IPV is the presence of alcohol. Lane & Knowles (2000) found preferences for harsher punishment when the perpetrator had consumed alcohol, while Witte et al. (2006) showed that the severity rating of IPV was affected by the aggressiveness of the language used by the perpetrator. Taken together, since the above-mentioned work by Tversky and Kahneman (1974) there has been an abundance of biases and other identified factors that are clearly shown to affect the judgments made by an individual. However, the focus of the current study is not the origin of perceptual differences and the underlying cognitive biases on which they are formed, but rather how they are manifested in the communication of IPV. Self-Experienced vs. Communicated IPV. Over the years, IPV has been proven difficult to communicate and understand accurately (Hammock et al., 2015; Sylaska and Walters, 2014). This is especially applicable in cases of non-physical violence, such as psychological violence (Hammock et al., 2015). As mentioned above, the severity of these types of violent acts are often dependent on the conditions of a particular situation and the perception of the situation, and the difficulty lies in conveying this perception to the receiver/rater. Regarding physical violence, or the physical aspects of sexual violence, the act is expected to have a direct route to physical and/or emotional suffering (e.g., physical injuries) and is therefore easier to detect and communicate. Currently, no research has to this day been able to present a clear theoretical framework regarding the difficulty in communicating violence, especially when mediated by second-order reinforcers as often is the case of psychological violence. This poses a number of problems on how IVP is communicated and rated both within the judicial system and between laymen. First, severity of violence tends to be rated dependent on the type of violence conducted by the offender, rather than based on the description made by the victim (Cerulli et al., 2015; Hammock et al., 2015). Second, there is a difference in the severity when comparing the individual that experienced the violence first-hand with a recipient to whom the event is communicated (Hammock et al., 2015; Sylaska & Walters, 2014). Third, the severity might be significantly dependent on who is describing the narrative, e.g., a witness (Di Tella et al., 2019), a victim (Arriaga & Capezza, 2011) or a perpetrator (Maglinte et al., 2016). However, this project aims at a better understanding of the problem and developing tools usable within the judicial system for mitigating the perceptual differences found when communicating IPV.

Gender and IPV. Gender stereotyping is an example of a phenomena which can be seen as a form of cognitive bias, where the gendered attitudes we hold are manifested in perceptual differences in the way we evaluate and respond to victims of IPV. Gender stereotyping is a prevalent phenomenon (Fiebert & Meyer, 1997) and studies where descriptions of IPV were communicated to recipients have shown that the gender of the victim and the rater influence the rating of IPV more than several other aspects of the situation. For instance, Sylaska and Walters (2014) found that participants rated both physically and psychologically violent situations as more severe when the woman was the victim and a man the perpetrator compared to the opposite gender role. Similar results were found in a study investigating participant responses to news stories of IPV (Savage et al., 2017) and examining how recipients perceived the severity of injury after IPV (Allen & Bradley, 2018). In relation to this, female victims have been shown to be consistently easier to empathize with compared to male victims (Osman, 2011). The phenomenon has since been investigated with scenarios depicting both heterosexual and homosexual partners, as well as with narratives where the genders of the perpetrator and the victim were swapped. In summary, participants rate the situations according to stereotypical gender roles and thus show more concern for the female than the male victims, and consider violent situations with male perpetrators more severe than violent situations with female perpetrators (Hammock et al., 2017; Russell et al., 2016; Scarduzio et al., 2017). The results were also consistent with studies where mock juries were asked to judge cases of IPV, in which the jurors were more keen on a guilty verdict when the perpetrator was male and the victim female (Mossière et al., 2018; Stanziani et al., 2018). It has been suggested that a reason for this is the perpetrator's ability to arouse fear of injury in the victim, which affects how the severity of the situation is perceived. This fear is evaluated as larger when the perpetrator is male, because, according to stereotypical gender roles, a man is supposed to be physically stronger and therefore more prepared to protect himself from a female perpetrator (Russell et al., 2016).

Male recipients of IPV view the violence as less severe than female raters (Alfredsson et al., 2016; Berkel et al., 2004; Nilan et al., 2014; Strömwall et al., 2014). Men consistently consider the victim to be more accountable for the violence (Alfredsson et al., 2016; Sylaska & Walters, 2014), and tend to blame the perpetrator less (Berkel et al., 2004; Strömwall et al., 2014). An example is the prevalence of rape myth acceptance (RMA), which differs between men and women (Lonsway & Fitzgerald, 1995). A consistent link between gender stereotypes and rape myth acceptance (RMA) were found by Klement et al. (2019), showing that the willingness to the assign blame to the victim was related to the degree of beliefs in rape myths, which in turn was related to gender stereotypes.

Moreover, research has shown that heterosexual men generally show a higher degree of RMA than women (Ferrão & Gonçalves, 2015; Reed et al., 2020; Suarez & Gadalla, 2010; Vonderhaar & Carmody, 2015) and that this holds regardless of whether the victim of sexual violence is male or female (Chapleau et al., 2008; Davies & McCartney, 2003; Reitz-Krueger et al., 2017). The reasons for the higher degree of RMA in men have been debated. Amongst other things, RMA has been shown to correlate with the reading of men's magazines, which promote sexual prowess in men (Hust et al., 2019), negative attitudes towards women (Lutz-Zois et al., 2015), psychopathic traits (Watts et al., 2017) as well as the promotion of anti-feminist attitudes and masculine norms (Cole et al., 2019). To what extent this is generalizable to IPV is, however, outside the scope of this study.

The current study

This study compares narrators' evaluations of the severity of violence with evaluations of the same event by recipients of the narrators to identify potential differences. It introduces a new paradigm that compares and analyzes narrators and recipients' ratings to establish and investigate perceptual differences in communication. In this case, perceptual differences are defined as differences between the narrators' evaluation of the severity of the event and the recipients' rating of the same event. Knowledge about these differences may have profound implications, as they influence how offenders are judged in legal cases and provide a vital understanding for conflict resolutions in intimate partner conflicts.

Types of perceptual differences. *Perceptual Differences in Calibration* (PDC) concerns the hypothesized difference between narrators that have experienced the violence and the recipient

that reads a narrative including a description of violence. For example, a person reading a narrative about violence will give a different severity rating than a person who experienced the violence first-hand. PDC can be measured by comparing the rating of a person who experienced the violent act with the rating of a person reading a first-person narrative about the same event.

Perceptual Differences in Accuracy (PDA) concerns the hypothesis that narrators' severity rating of the violence they experienced cannot be fully predicted by the content of their narrative of the event itself. PDA can be measured by correlating first-person ratings and ratings made by persons reading first-person narrative descriptions about the same event. A low correlation would indicate a PDA, while a high correlation would indicate little or no PDA. For example, if the correlation between the narrators' severity ratings and recipients' ratings is high, there is no perceptual difference in accuracy.

Perceptual Differences related to Gender (PDG) implies that gender stereotypes are exaggerated through communication, leading to victims'/offenders' gender impacting recipients' severity ratings of the event.

Perceptual Differences based on Role (PDR) means that the role of the person experiencing and narrating—the victim, offender, or bystander—may affect ratings. Here, perceptual differences of self-interest may be important, where offenders may have a greater interest in down-playing the severity of the event compared to victims.

Note that PDC, PDG, and PDR can be measured for a single violent event, e.g., by subtracting the experienced and communicated ratings, while measuring PDA requires a correlated analysis among several events. Also, note that these perceptual differences can be found independent of each other, and thus PDA may occur in a dataset that does not reflect PDC, or PDC may occur without PDA.

Practical implications of perceptual differences. Identifying and measuring these perceptual differences is important, as it can help those who directly experience violence and the recipients who read their narratives to acknowledge, adjust, avoid, or reduce the effects of these errors. Understanding perceptual differences is of particular importance in legal contexts, as police officers, jurors, and other agents of law enforcement, as well as those who have experienced IPV, may be strongly subject to perceptual differences in communication.

Offenders are especially interesting in this regard due to the implications for legal contexts. Offenders have been shown to justify and diminish their violent actions, as well as to assign blame to the victim (Londt, 2014; Mullaney, 2007; Whiting et al., 2012). Several factors may contribute to the above-mentioned perceptual differences in calibration, accuracy and gender, which might affect the legal process and potentially the verdict. These include offenders' potentially skewed narrative depending on the offender's gender (Hammock et al., 2017; Russell et al., 2016; Savage et al., 2017; Sylaska & Walters, 2014) and the gender of the recipient of the narrative such as law enforcement officials, jury members, or judges (Alfredsson et al., 2016; Berkel et al., 2004; Gover et al., 2011; Hine & Murphy, 2017; Mossière et al., 2018; Strömwall et al., 2014).

The same can be said of bystander witnesses, where the existence of potential perceptual differences in calibration might also have important legal consequences (Medwed, 2019). The use of bystander witnesses' ratings as a separate condition enables comparisons with the severity ratings of victims and offenders.

Our study treats sexual violence and physical violence separately, because these two categories may have different legal implications. How physical and sexual violence is interpreted may be mediated by gender stereotypes (Edwards et al., 2011; Osman, 2011; Sylaska & Walters, 2014; Hammock et al., 2015; Hildebrand & Najdowski, 2015; Russell et al., 2016; Hammock et al., 2017; Reed et al., 2020), and sexual violence may be more affected by societal prejudice than physical violence.

Hypotheses

The aim of this study is to investigate perceptual differences in communication (calibration, accuracy, gender, and role) when rating the severity of three types of violence (psychological, physical, and sexual) based on first-person narratives from three roles of people involved (victims, offenders, and bystanders) in heterosexual romantic relationships. We focus on novel findings concerning how perceptual differences in calibration (H1) and accuracy (H2) interact with type of violence and roles, but also validate the method by replicating earlier findings on perceptual differences in role (H3) and gender (H4).

H1. Perceptual difference in calibration. Recipients that read narratives will generally provide higher severity ratings than narrators. This hypothesis is based on the narrators' desensitization to violence or cognitive dissonance (Arriaga & Capezza, 2011; Di Tella et al., 2019; Kennedy & Ceballo, 2016; Maglinte et al., 2016; Mullin & Linz, 1995; Nicholson & Lutz, 2017). We hypothesize that the perceptual difference in calibration is larger for physical and sexual violence, as this violence is based directly on reinforcers (e.g., produces an immediate unconditional and negative response of pain), whereas psychological violence, which is a learned secondary reinforcer, is more difficult to communicate. The theory on cognitive dissonance (Arriaga & Capezza, 2011; Maglinte et al., 2016; Nicholson & Lutz, 2017) predicts that a perceptual difference in calibration will exist in relation to narratives written by victims and bystander witnesses, but not for offenders who need to reduce the dissonance between his/her action and the narrative. In contrast, desensitization theory predicts a perceptual difference in calibration for all three types of narrators (Di Tella et al., 2019; Kennedy & Ceballo, 2016; Mullin & Linz, 1995).

H2. Perceptual difference in accuracy. The correlation between the severity ratings of narrators and recipients regarding psychological violence will be lower than for sexual and physical violence. A weak correlation indicates difficulty in predicting recipients' ratings based on the narrator's rating. Psychological violence should be especially affected by this, since it is conditioned rather than direct, and therefore considered more difficult to communicate accurately.

H3. Perceptual difference in role. We hypothesize that severity ratings depend on the role of the person experiencing the violent event. In particular, victims will view the event as more severe than the offender (H3a), because the offender has a self-serving interest in diminishing the severity of the event. Furthermore, we hypothesize that bystanders will evaluate the event as more severe than victims or offenders (H3b). This is based on the results regarding offender denial and victim blaming and the assumption that both male and female offenders tend to diminish the severity of their perpetrated violence (Banwell, 2010; Flinck & Paavilainen, 2010; Londt, 2014; Mullaney, 2007; Nilan et al., 2014; Taylor et al., 2019; Whiting et al., 2012).

H4a. Perceptual difference in gender of the victims. Recipients that read narratives will rate the severity of violence higher for female victims than male victims. The expectation is that this effect is present through all three types of violence. Earlier

Table 1 Number of narratives included in and excluded from Phase 1, by scenario.

	SO	SV	SB	PsO	PsV	PsB	PhO	PhV	PhB	Total
Included	123	171	83	187	222	227	179	196	208	1596
Excluded	164	116	204	100	65	60	108	91	79	987

SO sexual offender, *SV* sexual victim, *SB* sexual bystander, *PsO* psychological offender, *PsV* psychological victim, *PsB* psychological bystander, *PhO* physical offender, *PhV* physical victim, *PhB* physical bystander.

research suggests that recipients show more concern for female victims since men should be physically strong enough to protect themselves from female offenders and female offenders therefore arouse less fear (Russell et al., 2016, Allen & Bradley, 2018; Hammock et al., 2017; Osman, 2011; Savage et al., 2017; Scarduzio et al., 2017; Sylaska & Walters, 2014).

H4b. Perceptual difference in gender of the recipients of the narratives. Female recipients of narratives will rate the severity of violence higher than male recipients. This is based on studies showing that men consistently consider victims to be more responsible for the violence and tend to blame the offender less (Alfredsson et al., 2016; Berkel et al., 2004; Nilan et al., 2014; Strömwall et al., 2014).

Methods

The study was a mixed design where the between-group variable was self-experienced versus communicated violence; the within-group variables were type of violence (sexual [S], physical [Ph], and psychological [Ps]), role (offender [O], victim [V], bystander [B]), participants gender (male, female), victim gender (male, female); and the dependent variable the severity rating of the violence in the narratives. The study was conducted in two phases, where participants were randomly sampled from the same population to participate in either Phase 1 or Phase 2.

Participants

Phase 1. Three hundred participants were recruited through Prolific Academics (www.prolific.co). The participants were pre-screened according to age (18–45), sexuality (heterosexual), gender (male/female), language (English), length of previous relationship (minimum of six month) and country of residence (UK). Upon completion, the participants in Phase 1 were rewarded £2.5 for their participation.

All participants completed the survey for Phase 1. Twelve participants were excluded because they did not meet the inclusion criteria, and thus 287 participants were ultimately included (18–45 years, $M = 31.65$, $SD = 7.11$, 72 men, 215 women).

Phase 2. Results for 608 participants were recorded in Phase 2. The inclusion criteria from Phase 1 (demographic variables, etc.) were also applied in Phase 2, which led to the exclusion of 109 participants, leaving data from a total of 489 participants for further analysis. The actual number included varied between type of violence; sexual violence (307 female, 173 male); psychological violence (315 female, 173 male) and physical violence (313 female, 176 male). Participants recruited for Phase 2 were rewarded £0.60.

Procedure

Phase 1. The participants described nine situations of violence that they had experienced in a romantic, heterosexual relationship that lasted six months or longer. The survey included a short definition of each type of violence. This was followed by a question asking whether the participant understood the description. The description of violence was also repeated at the top of each scenario to remind the participants what kind of violence they were describing. The participants were asked to construct three narratives in which they acted as victims of sexual, physical, or psychological violence in their relationship; three narratives in which they acted as offenders of sexual, physical, or psychological violence in their relationship; and three narratives in which they witnessed sexual, physical, or psychological violence in a romantic, heterosexual relationship. The scenarios occurred in randomized order. The narratives needed to be at least 50 words long and be written so that an acquaintance could understand the content. If they had not experienced the requested situation, they were asked to describe a situation they had experienced that was as similar as possible to the requested situation. The participants were then told to rate the severity of violence in each narrative on a scale from 0 (not serious at all) to 10 (very serious). The narratives from Phase 1 were screened and excluded if they did not meet the requirements for Phase 2. The reasons for exclusion were (1) the participant stated they had not experienced the type violence asked for, (2) the narrative described violence other than intimate partner violence (i.e., not a romantic partner), (3) the narrative depicted a type of violence or narrative type other than what was asked for, (4) the narrative came from a second-hand source and not the participant's experience, (5) the narrative depicted violence in a non-heterosexual relationship or (6) the writing in the narrative was illegible. For sexual violence, many narratives were excluded because the participant simply wrote that they had no narrative to contribute. Table 1 shows the number of included narratives.

Phase 2. A new group of participants was recruited using Prolific Academics. They read and rated the narratives from Phase 1. The narratives from Phase 1 were placed into nine categories based on type of violence (physical, psychological, or sexual) and type of narrator (bystander, offender, or victim). The narratives were randomized, and each participant was instructed to read a total of 9 narratives, one from each scenario, and rate the severity of the violence in the narratives on a scale of 0 (not serious at all) to 10 (very serious). They were also asked to submit five different keywords for each narrative, describing the severity of the violence in it. Lastly, the raters were asked to convey the same relationship information and demographic data found in Phase 1.

Results

To enable statistical analyses and where possible, the severity ratings of the narratives from Phase 1 were paired with the rating on the same narratives in Phase 2, resulting in two ratings variables per narrative. Since many narratives received more than one rating in Phase 2, the number of ratings included in this variable was larger. The ratings from Phase 1 were therefore copied and matched with their Phase 2 counterparts. All data analysis was conducted with pairing (fixed effect), but how the pairing was made differed for different variables. For the comparisons between roles (offender, victim, or bystander) data was paired by participants (fixed effects), comparisons between Phase 1 and 2

Table 2 Severity ratings of violence for narrators and recipients.

Scenario	Mean (SD) narrator	Mean (SD) recipients	t	df	Sig. (2-tailed)
SO	2.63 (2.37)	3.48 (2.85)	−6.07	489	0.000
SV	5.07 (3.22)	6.42 (3.02)	−10.03	489	0.000
SB	6.25 (2.80)	6.71 (2.51)	−3.88	480	0.000
PsO	3.55 (2.35)	3.94 (2.51)	−2.87	488	0.004
PsV	4.80 (2.78)	5.50 (2.61)	−5.10	500	0.000
PsB	6.32 (2.22)	6.24 (2.25)	0.61	493	0.543
PhO	4.81 (3.10)	4.23 (2.83)	3.55	491	0.000
PhV	5.11 (3.34)	6.00 (3.10)	−5.39	491	0.000
PhB	6.38 (3.38)	7.32 (2.33)	−14.99	488	0.000

The columns show the scenarios, mean, and standard deviation of violence severity ratings for narrators and recipients, *t*-values, degrees of freedom, and *p*-values for *t*-tests between the narrators and recipients.

was paired by narratives (fixed effects), whereas comparisons between gender was paired with narratives (fixed effects).

After the exclusion process in Phase 1, 1,596 narratives remained (see Table 1). In Phase 2, a total of 109 narratives were excluded from the analysis due to an absence of ratings. Some ratings from Phase 2 were also excluded because of a server problem that resulted in doubled responses. The statistical analysis was based on the following numbers of ratings for each scenario: SO $N = 490$, SV $N = 490$, SB $N = 481$, PsO $N = 489$, PsV $N = 501$, PsB $N = 494$, PhO $N = 492$, PhV $N = 492$, PhB $N = 489$).

The demographic variables (age, education, income, length relationship) were analyzed, but no significant differences were found between Phase 1 and 2, and therefore not used as covariates in the analyses below.

H1. Perceptual difference in calibration. This hypothesis suggested that recipients would generally provide higher severity ratings than narrators. This hypothesis was supported. The recipients ($M = 5.54$, $SD = 2.97$) rated the severity of violence significantly higher ($t(4417) = -14.37$, $p < 0.001$, paired on narratives) than the narrators ($M = 4.83$, $SD = 3.07$).

The nine scenarios. Nine paired samples *t*-tests were also conducted to investigate differences between the ratings of narrators and recipients for all scenarios. The results showed significant larger severity ratings for recipients in most scenarios (see results in Table 2 and Figs. 1–3). The main exception was that the narratives made by physical violence offenders (PhO), which were the only results in which narrators rated the severity of violence higher than recipients ($t(491) = 3.55$, $p = <0.001$). Furthermore, there was no significant difference in the bystander psychological violence scenario.

Physical violence. A mixed ANOVA test showed discrepancies between narrators and recipients in their physical violence severity ratings. A significant main effect showed that recipients rated physical violence narratives more severely than narrators ($f(1, 1470) = 91.07$, $p = <0.001$, partial $\eta^2 = 0.06$, fixed effect). A perceptual difference in calibration, as hypothesized in H1, was therefore found. An interaction between type of narrator (offender, victim, or bystander, fixed effect) and recipient ($f(2, 1470) = 82.52$, $p = <0.001$, partial $\eta^2 = 0.10$ fixed effect) (see Fig. 1) was also found. This showed that offenders' narratives were rated higher by narrators than by recipients (narrators $M = 4.81$, $SD = 3.10$, recipients $M = 4.23$, $SD = 2.83$, fixed effects), unlike victim narratives (narrators $M = 5.11$, $SD = 3.34$, recipients $M = 6.00$, $SD = 3.10$, fixed effects) and bystander narratives (narrators $M = 4.96$, $SD = 3.38$, recipients $M = 7.32$, $SD = 2.33$, fixed effects).

Sexual violence. There was a main effect between the narrators' and recipients' ratings, which confirmed a difference in calibration and supported H1 ($f(1, 1458) = 136.50$, $p = <0.001$, partial $\eta^2 = 0.09$, fixed effects). Furthermore, there was an interaction effect between type of narrator (offender, victim, or bystander, fixed effect) and the discrepancy between the narrators' and recipients' severity ratings ($f(2, 1458) = 11.63$, $p = <0.001$, partial $\eta^2 = 0.02$, fixed effect) (see Fig. 2). This interaction effect showed that victims' narratives yielded the largest discrepancy in severity ratings between narrators and recipients (narrators $M = 5.07$, $SD = 3.22$, recipients $M = 6.42$, $SD = 3.02$, fixed effects).

Psychological violence. A mixed ANOVA test showed that recipients rated the events as more severe than narrators did ($f(2, 1481) = 19.21$, $p = <0.001$, partial $\eta^2 = 0.01$, fixed effect). A significant interaction effect was found between type of narrator (offender, victim, or bystander fixed effect) and rating discrepancy ($f(1, 1481) = 8.68$, $p = 0.01$, partial $\eta^2 = 0.01$) (Fig. 3), where victims' narratives had the largest discrepancy between narrators' and recipients' severity ratings (narrators $M = 4.80$, $SD = 2.78$, recipients $M = 5.50$, $SD = 2.61$, fixed effects). It also showed that recipients did not rate violence severity higher than narrators for bystander narratives (narrators $M = 6.32$, $SD = 2.22$, recipients raters $M = 6.24$, $SD = 2.25$, fixed effect).

Comparisons of type of violence. A univariate ANOVA analysis was conducted to investigate how the discrepancies in severity ratings between narrators and recipients differed depending on whether the narrative described sexual, psychological, or physical violence. The results (see Fig. 4) were statistically significant ($f(2, 4415) = 14.18$, $p = <0.001$, partial $\eta^2 = 0.006$, fixed effects). Tukey's post hoc test showed no statistically significant difference between sexual and physical violence ($p = 0.999$). However, there were statistically significant differences ($p = <0.001$) between psychological violence ($M = 0.34$, $SD = 2.97$) and sexual violence ($M = 0.89$, $SD = 2.93$), as well as between psychological violence ($M = 0.34$, $SD = 2.97$) and physical violence ($M = 0.89$, $SD = 3.77$). In summary, the perceptual difference in calibration was less evident for psychological violence than for other types of violence.

H2. Perceptual difference in accuracy. Perceptual difference in accuracy suggests that the correlation between the severity ratings of narrators and recipients would be lower for psychological violence than for sexual and physical violence. A Pearson's correlation between narrator ratings in Phase 1 and recipient ratings in Phase 2 showed significant positive correlations on all scenarios ($p < 0.001$; see results in Table 3). The correlations for narratives of psychological violence were low for offender narratives ($r = 0.25$) and bystander narratives ($r = 0.21$), but moderate for victim narratives ($r = 0.35$). Regarding the remaining six correlations, all were moderate, apart from the correlation for physical violence offender narratives ($r = 0.265$). Hypothesis 2 was, therefore, only partly confirmed.

H3. Perceptual difference in roles. Consistent with H3a, offenders' severity ratings were lower than victims' ratings ($t(1011) = 6.7 < 0.001$). Hypothesis H3b was also supported, because bystander severity ratings were higher than victim ratings ($t(1020) = 4.2 < 0.001$) (see Fig. 5).

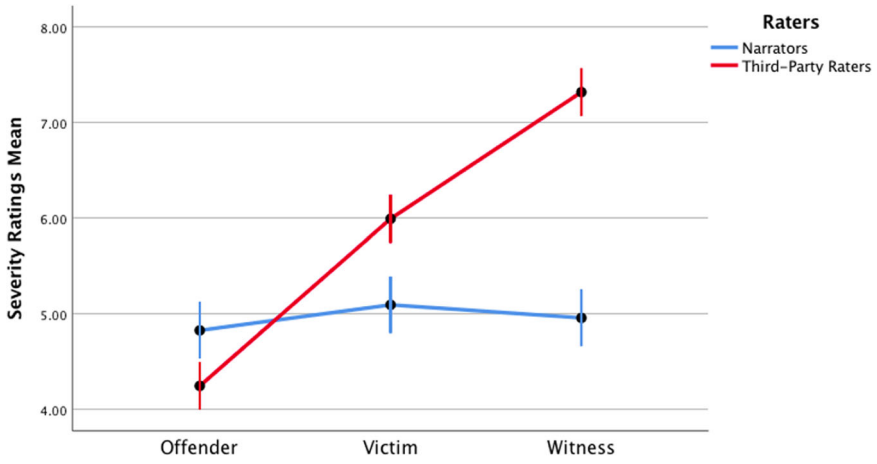

Fig. 1 Mean severity physical violence ratings of recipients minus narrators. The figure shows the mean severity ratings for offenders, victims and witnesses divided into narrators and recipients.

Fig. 2 Mean sexual violence severity ratings of narrators and recipients. The figure shows the mean severity ratings for offenders, victims and witnesses divided into narrators and recipients (i.e., third-party raters).

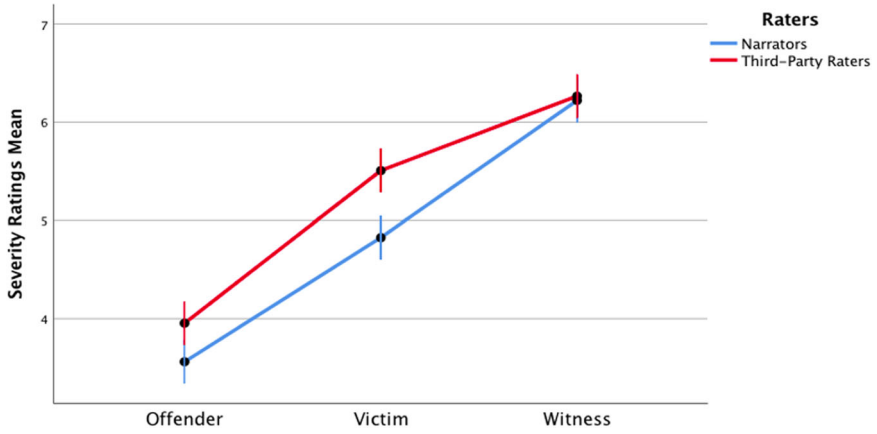

Fig. 3 Mean psychological violence severity ratings of narrators and recipients. The figure shows the mean severity ratings for offenders, victims and witnesses divided into narrators and recipients (i.e., third-party raters).

Perceptual difference in role may also interact with perceptual differences in calibration. Figure 6 shows a larger perceptual difference in calibration for victim and bystander narratives compared to offender narratives. One possible reason is that the offender may have an interest in communicating a lower degree of severity to a recipient, leading to a lower perceptual difference in calibration for offender narratives compared to victim and bystander narratives.

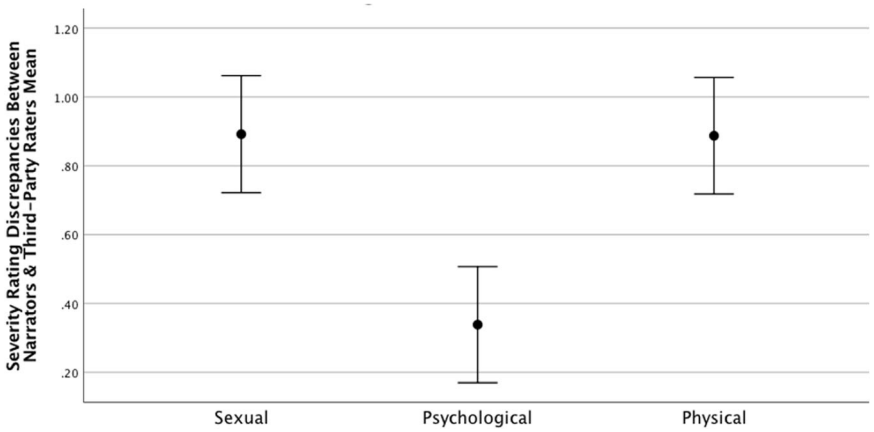

Fig. 4 Severity ratings for the recipients minus the severity ratings for the narrators divided into sexual, psychological, and physical violence. The figure shows the severity ratings for the recipients minus the severity ratings for the narrators divided into sexual, psychological and physical violence.

Table 3 Pearson's correlation between ratings in Phase 1 and ratings in Phase 2.

	PsO	PsV	PsB	PhO	PhV	PhB	SO	SV	SB
r between Phase 1 and Phase 2	0.250**	0.350**	0.210**	0.265**	0.358**	0.301**	0.305**	0.540**	0.526**

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

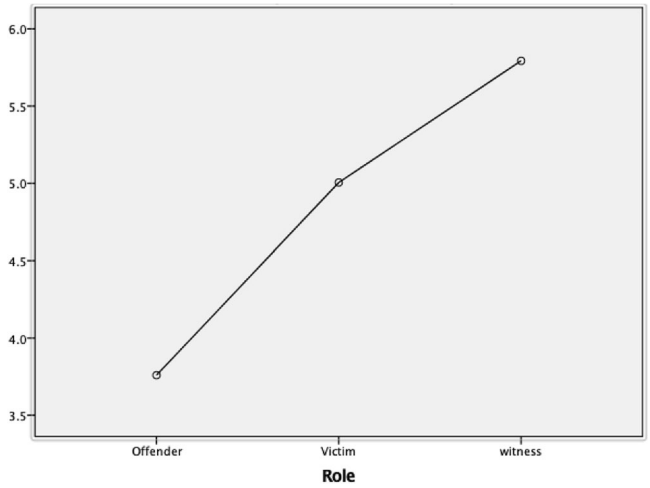

Fig. 5 Mean severity ratings divided in the offenders, victims and witnesses. The figure shows the mean severity ratings for offenders, victims and witnesses.

H4a. Perceptual difference in victims' gender. An independent *t*-test was carried out to investigate whether the discrepancy between the severity ratings of narrators and recipients differed depending on whether the victim was male or female. The results showed a statistically significant difference ($t(2952) = 5.75$, $p = <0.001$, two tailed, fixed effect), where the discrepancy between narrator and recipient ratings was larger when the victim was female ($M = 0.94$, SD = 3.27) rather than male ($M = 0.25$, SD = 3.30). Hypothesis 4a was therefore confirmed.

A univariate ANOVA analysis was used investigate whether the results depended on the rating comparison being between (1) male raters assessing male victims' narratives, (2) male raters assessing female victims' narratives, (3) female raters assessing male victims' narratives or (4) female raters assessing female victims' narratives. The results were significant ($f(3, 2950) = 19.85$, $p = <0.001$, partial $\eta^2 = 0.020$, fixed effects see Fig. 7). Tukey's post hoc test showed a significant difference ($p = <0.001$) between female raters scoring male victims' narratives ($M = -0.02$, SD = 3.35) and female raters scoring female victims' narratives ($M = 0.76$, SD = 3.37). However, it did not show a statistically significant difference ($p = 0.07$) between male raters scoring male victims' narratives ($M = 0.76$, SD = 3.14) and male raters scoring female victims' narratives ($M = 1.25$, SD = 0.14).

H4b. Perceptual difference in raters' gender. The discrepancy between the ratings of the narrators and the recipients was larger ($t(2952) = -5.16$, $p = <0.001$, fixed effect) when the rater was male ($M = 1.02$, SD = 3.11) compared to female ($M = 0.37$, SD = 3.38). H4b was therefore discarded. In other words, no matter the gender of the victim, male raters consistently had a higher discrepancy between narrators and recipients' severity ratings of violence compared to female raters.

Discussion

General perceptual difference in calibration (H1). Hypothesis 1 was confirmed for most conditions (except for offender physical violence and the bystander psychological violence conditions), showing the existence of a perceptual difference in calibration, where recipients rated violence more severely than narrators. Thus, narrators who had experienced the episode of IPV rated the severity of the violence they experienced lower than recipients did. This supports the hypothesis that exposure lowers the severity ratings of an event (Arriaga & Capezza, 2011; Di Tella et al., 2019; Kennedy & Ceballo, 2016; Maglinte et al., 2016; Mullin & Linz, 1995; Nicholson & Lutz, 2017). An alternative hypothesis would be that effect found was driven by rape myth acceptance (RMA) (Frese et al., 2004); however, this hypothesis would predict a larger perceptual difference in calibration for sexual violence than physical violence, which was not supported by the data.

The physical violence condition for offenders was the only condition with a 'reversed' perceptual difference in calibration,

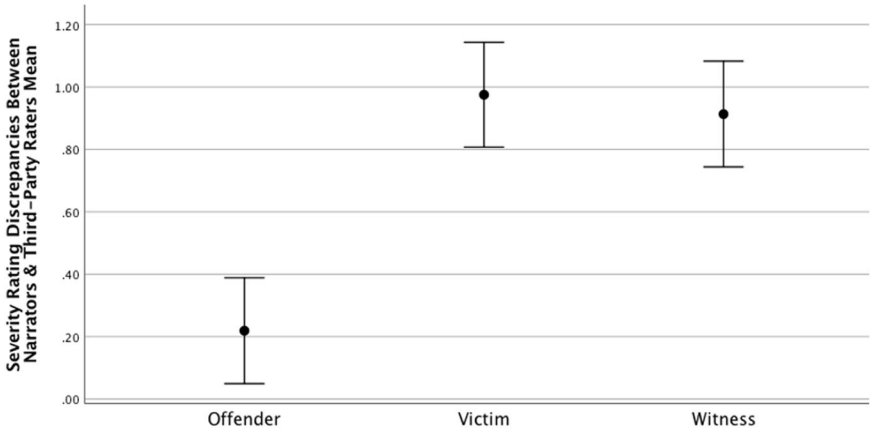

Fig. 6 Severity ratings of recipients minus severity rating of narrators divided into offenders, victims, and witnesses. The figure shows the severity ratings for the recipients minus the severity ratings for the narrators divided into divided into offenders, victims and witnesses.

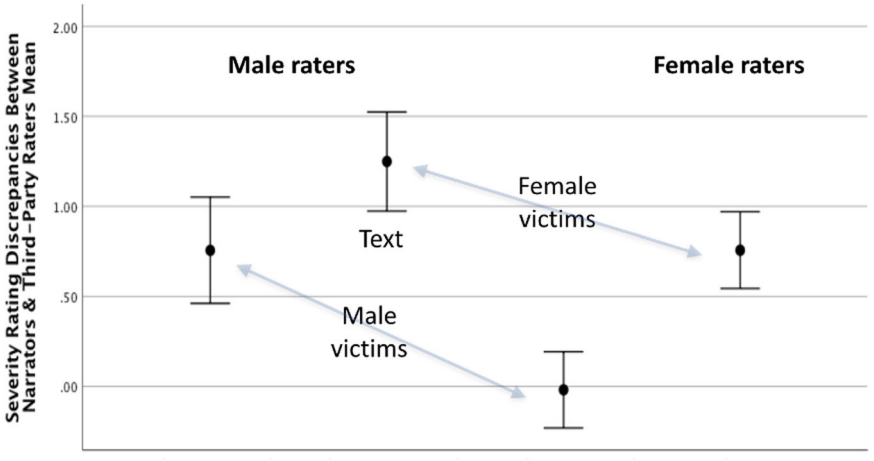

Fig. 7 Severity ratings of the recipients minus severity ratings of narrators divided into genders of raters and victims. The figure shows the severity ratings of the recipients minus severity ratings of narrators divided into genders of raters and victims.

i.e., where the severity ratings were significantly larger for the narrators than the recipients. This was an unexpected finding that needs to be replicated in an independent study. We do not offer a clear explanation for this finding; however, a speculation is that the offenders may have a strong feeling of guilt following a highly stigmatized act of physical violence. This may be hard to rationalize for the offenders, leading to a boost in their severity ratings and simultaneously a downplay in the severity of their narratives.

In addition, there was no significant variation in the calibration of perceptual difference for the bystander psychological condition. A plausible reason for this is that psychological violence may be hard to understand for bystanders, as it may require deeper knowledge in the relationship between the offender and the victim. This hypothesis is supported by the finding that this condition had the lowest perceptual difference in accuracy (i.e., the lowest correlation between narrators and recipients' severity ratings).

Interestingly, there was an interaction effect between the perceptual difference in calibration and role, where offenders had less physical perceptual difference in calibration than victims and bystanders. A possible explanation for this effect is that offenders have a perceptual difference in self-serving when communicating lower severity values of their action, which leads to a lower rating by the recipients. A related view is that cognitive dissonance is related to perceptual difference in calibration (Di Tella et al., 2019), where offenders need to internally justify their behavior and therefore have generally lower severity ratings of their violence also; they also emphasize lower severity in communicated narratives of physical violence.

There was furthermore an interesting interaction effect between perceptual difference in calibration and violence type, where there was perceptual difference in calibration for physical and sexual violence, but not for psychological violence. A possible understanding of this finding is that psychological violence, being a secondary learned reinforcer, is harder to communicate than physical or sexual violence, which is a primary unconditionally learned reinforcer. As physical violence is more difficult to communicate, the recipients would rate them lower.

Perceptual difference in accuracy (H2). The perceptual difference in accuracy hypothesis was that narrators' severity ratings of the violence they experienced could not be fully predicted by the narrative of the event itself, and that narrators' ratings cannot therefore perfectly predict the severity ratings of recipients. However, the correlations between narrator and recipients were significantly larger than zero in all scenarios, suggesting that it is, on average, possible to predict a recipient's rating based on the narrator's rating for all scenarios. The correlations strengths are low to medium, suggesting that it is difficult to accurately predict the violence severity rating based on the narratives.

There were interaction effects between the perceptual difference in accuracy, roles, and type of violence. The lowest correlations were found for narratives made by psychological violence offenders, psychological violence bystanders, and physical violence offenders. As suggested earlier, one possible rationale for these results is that psychological violence is a second-order reinforcer and therefore hard to communicate accurately (compare with Jara et al., 2006). Another important point here is that the lowest correlations between narrator and recipient ratings were for offender narratives. This is consistent with the claim that this perceptual difference is due to the offender's self-interest in describing the violent event more vaguely in order to diminish the risk of being blamed for the violence (Banwell, 2010; Flinck & Paavilainen, 2010; Londt, 2014; Mullaney, 2007; Nilan et al., 2014; Taylor et al., 2019; Whiting et al., 2012).

Perceptual difference in role (H3). Our results also replicate previous well-established findings on perceptual difference in the literature, which provides validity to the proposed methods. In particular, consistent with previous literature we show that offenders give lower severity ratings compared to victims (H3a). This supports the claim that offenders would diminish the severity of an incident compared to victims for reasons of self-interest. H3b, proposing that bystanders would give higher severity ratings compared to victims, was also supported. This is consistent with the view that offender denial and victim blame is at work, leading to both male and female offenders diminishing the severity of the violence they perpetrate (Banwell, 2010; Flinck & Paavilainen, 2010; Londt, 2014; Mullaney, 2007; Nilan et al., 2014; Taylor et al., 2019; Whiting et al., 2012). It is also consistent with the hypothesis that exposure to violence diminishes raters' severity ratings, since those in the bystander role were merely witnesses to the violence but did not experience it directly.

Victim gender (H4a). Our data generally show consistent findings with perceptual difference in the gender literature, providing additional support to the validity of the method. The data support the hypothesis that the discrepancy between narrator and recipient ratings are larger when the victim was female. One possible reason is that violence against female victims is considered more severe due to gender stereotypes, as well as RMA regarding sexual violence. There is also a main effect, showing that narratives with female victims are consistently rated as more severe than those with male victims. However, when analyzing female and male raters separately, only the narratives for results from female raters were significant, while the results narratives for male raters were not significant. The potential reason for this will be discussed in greater detail further below.

Rater gender (H4b). This hypothesis was that male recipients would generally rate violence as less severe compared to female recipients. However, the study found the opposite, with male raters rating violence more severely than female raters. This suggests that perceptual difference in gender could be operating in ways different than previously suggested (e.g., Alfredsson et al., 2016; Nilan et al., 2014) and may not always cause male raters to be less sympathetic towards victims of violence. In fact, the study found that the largest discrepancies were for male recipients rating narratives with female victims and for female recipients rating narratives with male victims, in which female recipients actually rate the violence in these narratives less severely than the narrators themselves. In contrast to this, the discrepancies for male recipients rating narratives with male victims and female recipients rating narratives with female victims are almost identical. This suggests that perceptual difference in gender seem to affect recipients' ratings primarily when ratings narratives involve victims of the opposite gender. For example, it seems to be primarily women who believe that males cannot be victims of violence, while men seem to consider violence with female victims to be far more severe than women themselves do.

Practical implications, limitations, and future research. One important goal of this study was to offer practical implications for the handling of IPV in legal contexts, that is, how the perceptual differences are *manifested* when interpreting and evaluating the narratives, rather than identifying which cognitive biases could be considered the underlying causes. The origin is, of course, of great theoretical importance, but less usable in a legal context. The most critical finding in our data was the existence of perceptual difference in calibration, where recipients rate the severity of violence higher than the narrators did. This finding was particularly strong for physical and sexual violence and relatively weaker for psychological violence. Thus, professionals in legal contexts should exercise caution against overestimating the severity of physical and sexual violence from language data. However, there was also an exception, where offenders rated their physical events as more severe than recipients. This finding should be replicated in future studies as it was the only condition where perceptual difference was reversed.

Furthermore, none of the scenarios yielded a high degree of accuracy (again, defined as a close correlation between narrators' and recipients' severity ratings. Accuracy was particularly poor for psychological violence. This suggests that psychological violence may be harder to communicate than other types of violence and that judges should be particularly cautious of potential perceptual difference when evaluating this type of violence. Accuracy was also low for offender narratives, suggesting that offenders are a less trustworthy source of information.

These perceptual differences have important implications for legal contexts, since desensitization may sway the decisions of both law enforcement agents and jurors. Either way, the topics of desensitization and cognitive dissonance in relation to perceptual difference in calibration merits further research. This study strengthens the hypothesis that perceptual difference in calibration exists, but its design does not allow it to determine whether the perceptual difference in calibration is actually mediated or caused by the effects of exposure. This study suggests that in the case of narratives by physical violence offenders, the desensitization of the rater is important to consider, since society today is filled with fictional characters committing physical violence yet still seen as heroes. It should be possible to positively correlate the amount of previous exposure to violence with the size of perceptual difference in calibration. Furthermore, since research on the effects of cognitive dissonance and desensitization on bystanders to IPV is lacking, this area of research would also be helpful to pursue in order to better understand the mechanics of the perceptual difference in calibration and discern which types of exposure have the greatest (or any) effect.

This study found a perceptual difference in gender in which violence towards female victims was seen as more severe than violence towards male victims. This has important implications for both future studies and legal contexts, since it means that male victims may be at a disadvantage and that female offenders may be at an advantage. This perceptual difference was demonstrated only for physical violence, however, which unfortunately may be due to the incorrect view that men cannot be victims of physical abuse (compare with statistics in the UK claiming otherwise; Office for National Statistics, 2019).

Apart from the above-mentioned recommendations, there are several ways to broaden the scope of this area of research. One suggestion would be to increase the study's generalizability by broadening the pre-screening criteria to include a wider age range, LGBTQ + participants, and other nationalities. It would also be of interest to create new scenarios applicable to legal contexts.

This study has focused on identifying perceptual differences. This may have important implications for social, cultural, and legal aspects of violence given that this knowledge can be used to *change* the perception of violence. An important future research question is whether knowledge of perceptual differences of violence may alter the evaluations. For example, if recipients are instructed of the degree of calibration differences in sexual violence, will they then adapt their ratings so that it matches the victims' severity ratings? If so, then our results may fundamentally change how we perceive the severity of violence. For this to have an impact on society and culture, this knowledge needs to be communicated in the media, or possibly be part of mandatory education programs in schools.

Increasing the accuracy in the perceptual difference between narrators and recipients may be more difficult as it requires an improvement in the quality of the severity evaluations but may perhaps be achieved by education and/or repeated practice of this task with continuous feedback on errors. This task may be particularly difficult for psychological violence as it is harder to communicate. Such education may be practically feasible for professionals, such as social workers, lawyers, judges, and psychologists that work with custody cases or legal trials related to sexual or physical violence. To what extent it is possible to decrease the perceptual difference with instructions, or education, for laymen or professionals is a topic for future research.

The collected data also allows to pose other research questions. For example, an interesting research question is to focus on the differences in the severity ratings between types of violence, or types of roles, for example by looking at only self-experienced ratings in Phase 1, or only at the read narratives in Phase 2, i.e., comparisons between different violence and roles. This may a focus of future research.

A possible artifact in the study is that participants in Phase 1 were excluded from the data analysis given that they did not write the narratives according to the instructions, whereas no such corresponding exclusions was conducted in Phase 2 as no narratives was written in this phase. Given that the excluded participants rate severity of violence differently from non-excluded participants this may cause an artifact in the current study. A possible reason for this could be that low socioeconomic statuses correlate both with being excluded from the study and the severity ratings of violence. Future studies need to control for this artifact, for example by letting participants write narratives in Phase 2 that would allow participants to be excluded on the same criteria in Phase 1 and 2.

Conclusion

In conclusion, this study found a general tendency for recipients to give higher severity ratings than narrators: an example of perceptual difference in calibration. However, this finding was more pronounced for physical and sexual violence than it was for psychological violence.

The data also support the existence of perceptual difference in accuracy; none of the scenarios had high accuracies. This is a particularly problematic form of psychological violence where narrators' ratings were the least well correlated with the severity ratings of recipients. This suggests that these types of narratives are the most difficult to communicate or interpret accurately. Perceptual difference in accuracy were also strong for offenders, which may be caused by their self-interest in attenuating the severity of the violence.

The study demonstrated the existence of a perceptual difference in gender, where narratives with female victims were rated more severely than narratives with male victims. Furthermore, male raters scored violence as more severe than female raters did, at least with respect to physical violence. This type of perceptual difference also seemed to be the most prominent when recipients scored narratives with victims of the opposite gender.

An alternative interpretation of these findings is that the exclusion of participants in Phase 1, due to how they generated the narratives, may have selected a group of participants that rate the severity of violence differently from the participants in Phase 2 where participants did not write narratives and therefore not excluded. Future studies should control for this possibility.

Data availability

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request but may be restricted due to ethical consideration related to the sensitivity of the material.

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Competing interests

The authors declare no competing interests.

Ethical approval

The study was admitted and approved by the Swedish Ethical Review Authority (Dnr 2022-06518-01). All research was performed in accordance with Declaration of Helsinki.

Informed consent

All participants were given written informed to consent to participate in the study and informed that they could withdraw at any time without justification.

Additional information

Correspondence and requests for materials should be addressed to Sverker Sikström.

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